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ABSTRACT

Australian vocational education and training (VET) providers show increasing interest in using electronic technology to provide online learning, student services, and business functions, according to a study that included a literature review, Internet search, interviews with organizations that use e-business models for online learning, analysis of overseas educational e-business models, and analysis of non-educational e-business models. Major findings include the following: (1) The new practices are indicators of growing convergence between e-business and online learning; (2) online learning is being repositioned as a service of customer-centric VET organizations; (3) new and emerging e-business models could enhance VET online learning system delivery, enrolment, and management; (4) positioning online learning as a component of an integrated, e-business approach of a customer-focused organization complements VET emphasis on stimulating adoption of online learning by improving pedagogy and quality measures; (5) VET organizations use e-business models similar to new ones from overseas and exhibit good practices in applying e-business principles or processes to online learning delivery and support; (6) benefits of e-business for customers are user choice and access to personalized services delivered electronically, and for organizations, benefits are increased market reach and enhanced customer relationships; (7) barriers are costs, user resistance, technology availability, limited staff skills, and organization inexperience; (8) risks are vendor instability, premature technology obsolescence, privacy invasion, and legal issues; (9) educational, organizational, cultural, and technological factors could influence convergence of e-business and online

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learning; and managers should conduct a strategic analysis of their organization that would influence planning e-business linkage with online learning. (Includes 47 references and 3 appendixes.) (YLB)

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E-business and online learning

Connections and opportunities for vocational education and training

Online Learning

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E-business and online learning

Connections and opportunities for vocational education and training

John Mitchell

Australian *Flexible* Learning Framework
Supporting Flexible Learning Opportunities

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Background

In August 1999, the Australian National Training Authority chief executive officers endorsed the *Australian Flexible Learning Framework for the National Vocation Education and Training System 2000–2004*. The Australian Flexible Learning Framework has been developed by the Flexible Learning Advisory Group and represents a strategic plan for the five-year national project allocation for flexible learning. It is designed to support both accelerated take-up of flexible learning modes and to position Australian vocational education and training as a world leader in applying new technologies to vocational education products and services.

An initiative of the Australian Flexible Learning Framework for the National Vocational Education and Training System 2000–2004

Managed by the Flexible Learning Advisory Group on behalf of the Commonwealth, all states and territories in conjunction with ANTA.

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Executive summary

This study examines the connections between e-business and online learning and considers the opportunities for the vocational education and training (VET) sector arising from these connections. The report shows that, historically, e-business and online learning evolved separately within vocational education and training, although examples of convergence between the two fields are now emerging. The report argues that encouraging this convergence will benefit VET customers and organisations.

Definitions and objectives

E-business is defined as doing business electronically, while online learning is defined as the use of computer networks to provide access to learning materials, activities and support. Online learning is a sub-set of e-learning and flexible learning.

The specific objectives of the project are to identify:

- the existing and potential connection between e-business and online learning and opportunities for applying e-business solutions to the online VET environment
- examples of good practice in applying e-business to online learning
- benefits, barriers, risks and other factors impacting on the application of e-business principles and processes to online learning.

Methods

The research methods for this study included a literature review; an internet search; interviews with representatives from Australian educational organisations which have a full or partial e-business model for online learning systems; an analysis of the e-business models used by overseas educational organisations which have a clearly articulated e-business model and also provide online learning; and an analysis of the e-business models and solutions implemented in sample non-educational organisations that could be transferred to the VET environment.

Major findings

The major findings are set out below, following the sequence of the chapters in the report.

The convergence of e-business and online learning in the 'information age'

In VET provider organisations throughout the 1980s and 1990s, computing and networking for administrative purposes evolved separately from the teaching and learning uses of computing and networking, partially explaining the parallel paths taken by e-business and online learning in VET.

In the mid-to-late-1990s, the information age, heralded by the spread of telecommunications technologies and electronically networked business strategies, provided the context for the growth

of e-business. The information age also created the preconditions for online learning to develop within a framework whereby online learning is one of many online customer services available to students, delivered by flexible, customer-centric VET providers.

There is an increasing interest in contemporary vocational education and training in using electronic technology to provide not just online learning, but a range of other services for students, such as enrolment and information provision, as well as online marketing. These new practices are indicators of the growing convergence between e-business and online learning in VET.

Although much research in VET focusses on online learning, e-business is having, and will always have, more impact on the economy, jobs and enterprises than online learning. E-business deserves more research attention in the sector.

Online learning repositioned as a service of customer-centric VET organisations

The focus of this study is online learning as a delivery system, not the act of learning. Online learning is just one of many front office student services in a VET organisation that conducts business electronically.

Online learning systems should be viewed as one among many front office services that are integrated with processes in the back office and the supply chain. VET staff managing online learning systems are developing an understanding of business processes and a contemporary customer-centric business philosophy.

E-business embraced by customer-centric, efficiency-conscious VET organisations

A number of VET organisations in Australia are using e-business to improve efficiencies in their supply chain, to improve their customer relationship management, to integrate their back office functions and to improve their procurement practices. These e-business practices often impact directly or indirectly on the delivery of online learning.

This positioning of online learning as one component of an integrated, e-business approach of a customer-focussed organisation complements the previous emphasis in VET of stimulating the adoption of online learning by improving pedagogy and quality measures.

New business models from overseas

Examples from overseas of e-business models that involve online learning include:

- ✧ providing customers with free online learning opportunities, to build customer relationships
- ✧ teaching customers online, free of charge, how to use the product, so they encourage others to buy the product
- ✧ using online collaboration to expand market reach for a range of services, including online learning
- ✧ providing customers with access to large databases of online learning and print materials
- ✧ implementing e-business by using online learning to teach staff about new systems.

While there are lessons for vocational education and training in each of the business models used overseas, a number of Australian VET organisations are already using similar models to those implemented overseas. However, VET organisations need to be wary of directly imitating models developed for different contexts, such as those developed for multinational bookstores, large banks or national post offices.

Examples of good practice

Some VET organisations, such as the Open Learning Institute in Queensland, Swinburne University of Technology in Victoria, WestOne in Western Australia and Central West Community College in New South Wales, are already some way towards bringing about a convergence between e-business and online learning.

The study provides examples of VET organisations developing customer relationship management systems and online enrolment systems that link to their online learning systems. The study also provides examples of VET organisations using e-marketing strategies to connect with their online learning students. Examples are provided of VET organisations using e-business to deliver a wide range of electronic services to their students. One of the services bundled for the student is online learning.

The major Australian organisations examined for this study and the connections they make between e-business and online learning are listed below:

- *Central West Community College, New South Wales* leverages off its strong e-business infrastructure to deliver many electronic services, including online learning.
- *Open Learning Institute, Queensland* uses customer relationship management systems to achieve internal efficiencies and to provide many customer services such as online learning.
- *WestOne, Western Australia* uses e-business to satisfy the holistic needs of the student, not just students' interest in online learning; for example, facilitating internet and email access for technical and further education students statewide.
- *Swinburne University's School of Business and eCommerce–TAFE Division, Victoria* provides a wide range of web-based services, including support for online learning.
- *Manly Warringah Community College, New South Wales* uses websites to partner third parties to provide an expansive program of courses and services, including online learning.
- *Douglas Mawson Institute of Technology, South Australia* is trialling the use of e-procurement to release back office staff from manual form filling, potentially re-assigning them to customer-related activities, such as administrative support for online learners.
- *Securities Institute of Australia, New South Wales* uses customer relationship management systems to improve information handling, reduce manual processes and improve relationships with customers, as well as to support online learning.
- *Sydney Community College, New South Wales* uses e-business to provide customers with information 24 hours a day, 7 days a week, which has priority over providing online learning.
- *Challenger TAFE, Western Australia* is currently implementing online enrolment and providing online learning as part of its strategic objective to provide customers with choice about how to access resources.
- *Australian Taxation Office, Australian Capital Territory* uses online learning to train staff to deliver e-business services to the public, including electronic lodgement of taxation returns.
- *ANZ Bank, Victoria* uses online learning to train staff to deliver e-business services to the public, including electronic banking.

Benefits, barriers and risks

The benefits of applying e-business principles and processes to online learning are different for customers and for the provider organisation. Benefits for customers include user choice and access to personalised services delivered electronically. Benefits for organisations include increased market reach and enhanced relationships with customers.

Barriers to achieving the customer services and improved business efficiencies made possible by incorporating online learning systems within an e-business framework include costs, user resistance, technology availability, limited staff skills and organisational inexperience.

Significant risks associated with e-business, such as vendor instability and premature technology obsolescence, privacy invasions and legal issues, need to be covered by a risk management program for embedding online learning within an e-business framework.

Educational, organisational, cultural and other factors

It is no simple matter to merge online learning and e-business, as online learning on its own is a complex field. In addition, educational issues regarding online learning are often interconnected with business, technological and marketing issues. For instance, there are ongoing debates in contemporary VET about business issues such as whether online content should be built in-house or the production outsourced or the content bought off the shelf. There are also debates about the benefits of rival off-the-shelf learning management systems.

Many organisational issues impact on the development of e-business models for online learning systems in VET, such as the range of new skills needed to develop, market and deliver online learning. VET managers will be challenged by the progressive rise of e-business, for instance, by customers finding it easy to access online the new suppliers of electronic learning products.

Recent research has identified the cultural characteristics of customers and providers which could constrain the development of online learning and e-business in VET.

Technology creates the opportunity for the use of e-business practices with online learning, but the technology is not always available for all users and it keeps changing as new functionalities are made available.

Planning strategies

The study highlights the development of a new business philosophy among many VET managers where flexible learning and its sub-set, online learning, are seen as components of the essential way of being in business; that is, to be demand-driven and market-driven not supply-driven and technology-driven. E-business is an aid in achieving these business goals.

The study also shows that e-business and its linkages with online learning will vary from one organisation to the next. Instead of seeking a planning template therefore, managers are advised to examine their own organisation, their markets and their partnerships, and let this strategic analysis influence the identification of alternative directions.

E-business and online learning converging in the 'information age'

This chapter provides a broad introduction to the study, by tracing the parallel paths of e-business and online learning over the last decade, both in research and in practice in vocational education and training (VET).

The discussion suggests that, in the early twenty-first century, technology developments, emerging business models and consequent business practices characteristic of the information age provide a new framework for understanding the logical convergence of e-business and online learning.

Key points

Key points in this chapter include the following:

- In VET provider organisations throughout the 1980s and 1990s, computing and networking for administrative purposes evolved separately from the teaching and learning uses of computing and networking, partially explaining the parallel paths taken by e-business and online learning in VET.
- In the mid-late 1990s, the information age, heralded by the spread of telecommunications technologies and electronically networked business strategies, provided the context for the growth of e-business. The information age also created the preconditions for online learning to develop within a framework where online learning has become one of many online customer services available to students, delivered by flexible, customer-centric VET providers.
- There is an increasing interest in VET in using electronic technology to provide not just online learning but a range of other services for students, such as enrolment and information provision, as well as for business functions such as online marketing. These new practices are indicators of the growing convergence between e-business and online learning in VET.
- The take-up of courses based solely on online learning remains limited in VET, but the use of online learning as one of many learning strategies will grow. Although much research in VET focusses on online learning, e-business is having, and will always have, more impact on the economy, jobs and enterprises than online learning. E-business deserves more research attention in the sector.

Previous research findings

VET researchers prepared a number of reports on online learning in recent years, focussing on specific aspects of online learning such as 'the on-line experience' (Harper et al. 2000), the quality of online learning (Cashion & Palmieri 2002) and pedagogy in online learning (Brennan 2002). The focus on learning processes in online learning is laudable in an educational sector, but this study suggests that those students learning online may also want a range of other services delivered electronically. Services such as the provision of online information about timetables may be as important, or more important, to the student than learning online. A case study of the University of California, Los Angeles (UCLA) found that students valued highly the student portal which enabled them to see the times for their tutorials and which of their friends were in the tutorial.

Two of UCLA's websites for students are described by Mitchell 2002.

> The student self-service web application for delivering virtual student services, URSA (www.ursa.ucla.edu/), is proving to be so successful for online enrolments that UCLA proposes to close down the previous enrolment system, based on voice response technology. URSA is based on the principle of self-service, and enables the student, using an encrypted Personal Identification Number (PIN), to enrol, change biographical details, request a particular time for a class and enter a name on a wait list for a particular class and access results. Students can make payments online using credit cards for tuition, parking, dining, and housing. In addition, a campus debit card, Bruincard, enables students to make payments to various food venues on campus, the bookstore, the medical centre and to make purchases from local merchants, using an account set up with and maintained by the university.
>
> MyUCLA (www.my.ucla.edu), the student web portal, allows applicants, students and alumni to access University calendars and past examinations and reading lists, view staff contact lists and hosts web sites for every course, including syllabus, reading lists, discussion boards, and other instructional materials. (Mitchell 2002, p.33)

Some developments in the Australian VET sector mirror those at UCLA. Mitchell (2001c) found that a major trend in the Australian VET market for online learning, in response to consumer demand, was the development by progressive VET providers of an holistic approach to the provision of student services for online learners. More than a range of online learning content was provided; other services such as online enrolment, online information and online payment systems were also made available.

One recent VET report on online learning discussed the connections between e-business and online learning. Mitchell's (2000c) examination of a possible marketing consortium to market VET online products and services identified nine contemporary business models for consortia involved in marketing VET. Mitchell noted that four of the business models require the use of the internet and that two of the internet-based models were the most popular with the study's VET respondents. The most popular business model with VET practitioners was the 'virtual community' model, requiring customers and partners to add their information to an internet site provided by a company operating the virtual community. The next most popular model was 'collaboration platforms', which involves business process collaboration between enterprises; for example, collaborating for marketing, using specialist online tools and shared information. These preferences are an example of VET personnel connecting e-business and online learning, in their desire to use the internet as a platform to market, deliver and support online courses.

E-business and online learning converged in theory and in practice in the Australian National Training Authority E-business Initiative project from 2000–2002. The project was in response to E-competent Australia (Mitchell 2000g) which found that competencies in e-business could be identified for inclusion in training packages within the National Training Framework, leading to the development of around 150 competencies for the Information Technology and Business Services Training Packages, as well as for tourism, finance, retail and rural industries. Appropriately, learning support materials for the first two training packages were developed in 2001 and made available electronically to VET teachers, in one case on CD-ROM and, in the other case, via the internet.

The report E-business in education (Mitchell 2002) describes the growth of e-business in higher education, VET, adult and community education (ACE) and schools in Australia. The study shows the importance of e-business in the back office and in the supply chain for educational organisations, but it does not extend to exploring the benefits of integrating the back office and the supply chain with the front office and online learning, which is a key part of this National Research and Evaluation Committee study. The front office of an organisation performs direct customer services; the back office of an organisation performs functions in fields such as finance and stores; and the supply chain links partners or suppliers of goods and services to the organisation. The

Mitchell (2002) study identifies key e-business components of the back office, such as e-procurement systems, electronic inventory systems, electronic finance systems, electronic human resource systems, customer relationship management systems and electronic student information systems. This present study complements the Mitchell (2002) study by identifying organisations linking these back office processes with the front office functions of online course enrolment, online payment of fees, online provision of student services and online learning.

Comparative impact of e-business and online learning

While recent VET research attention is mostly focussed on online learning, not on e-business, it is interesting to reflect that the economic impact study of e-business undertaken by Monash University (NOIE 2000) identified the education sector as one of the key industries that will be affected by e-business. The report showed that e-business is not only transforming industries such as tourism, banking, retailing and business services, it is also impacting on the education industry. Anecdotal evidence suggests that the take-up rate of stand-alone online learning continues to represent a small proportion of VET activity, while research (NOIE 2000) indicates that e-business will have fundamental effects on service industries such as education and health, on business processes and business development and customer service.

It is interesting to compare the forecasted impact of online learning on the economy with the impact of e-business. International Data Corporation (IDC) predicts that the information technology/multimedia training market for Asia-Pacific, excluding Japan, will reach over US$2.5 billion by 2004 and that the e-learning segment of this market will reach US$235 million by 2004. International Data Corporation predicts that this growth will be largely driven by Australia, which will account for almost half of the e-learning market in Asia-Pacific at the end of the forecast period. *The Australian* (25 July 2000) estimated the size of the e-learning market in the Asia Pacific would be around $1.7 billion within three years, compared to the corporation's $2.5 billion. In the previous twelve months, the Australian component of the e-learning market was estimated by the *Sydney Morning Herald* (24 July 2000) to be worth approximately $400 million per annum, although the majority of the market currently is information technology software training, and the developers of the software dominate the training provision. Most of this information technology training is for certification by Microsoft, Oracle and Novell.

In stark contrast to the size of the e-learning market in Australia at around $200–400 million in the early twenty-first century, the Allen Consulting Report (*The Australian* 31 July 2001) calculated that the revenue generated by the internet economy alone is currently $28 billion per annum, 4.3% of the Australian gross domestic product (GDP). The estimated revenue by 2003–4 will be $49 billion, or 6.7% of GDP. E-business is far more significant to Australia's economy, including the creation of job and industry growth, than e-learning and its sub-set, online learning, both of which are defined in full in the next chapter. Given these figures, e-business deserves ongoing research attention in VET.

Parallel but separate paths

The development of e-business has generally occurred separately from the growth of online learning in VET (Mitchell 2000a). On the surface, this separation of e-business and online learning in VET is surprising, given that both e-business and online learning require the use of computer networks. Earlier research (Mitchell 2000a) suggests that the connections between the two developments are only just beginning to be made, both in the literature and in practice. To provide VET organisations in Australia with information and analysis that will inform planning and management, this study focusses on identifying these connections and contributing factors.

The theoretical connections between e-business and online learning start with the shared use of electronic technology. E-business means conducting business electronically, both within an enterprise and externally. Online learning also uses electronic technology. Given this shared use of electronic technology, it is interesting that the two activities are generally treated as independent of each other. For instance, research for this project shows that it is common in VET organisations for online learning to be managed by educators in the 'front office' of the organisation, who are in direct contact with students, while e-business is often viewed as an information technology activity handled in the 'back office' by non-educators. Separating online learning as a front office activity with no connections to back office activities creates two sets of technologies in the one organisation, two distinct sets of staff and two islands of business processes.

Research for this study suggests that this separation is historical and is influenced by the technology available over the last two decades and by the business models and practices developed in the 1980s and 1990s. In VET, the separation stems from the 1980s when computers were first introduced in large numbers into VET organisations. As networking of computers from one part of the building or campus to another was not possible or affordable in the 1980s, it was common for the computers in the student computer classrooms to be different from the computers in the back office or the reception area. In some cases, the separation was intensified when teachers used Apple Macintosh computers and administration staff used MS-DOS computers, in the period when Apple Macintoshes used a proprietary operating system which was incompatible with MS-DOS.

Despite the availability in the 1990s of computer networking, the internet and databases, the separation of the business applications of computing from online learning persisted. When the facility for networking computers was introduced into VET organisations in the 1990s, the networks for administration computers were often separate from the networks for student classroom computers. The availability of the internet in the late 1990s was also approached differently by teaching and administrative staff. Teaching staff often saw the internet as a tool for providing online learning while administrative staff were inclined to use an intranet, understandably nervous of the security and privacy issues surrounding the internet. Powerful databases that became available to VET organisations in the late 1990s were generally used for storing administrative records, while educational staff looked to separate technologies such as 'learning management systems' for storing data on online learning, such as course materials and reports on students' online activity.

The following table broadly summarises the two islands of technologies and business practices in the 1990s in VET organisations.

Table 1: Two islands of technologies and business practices in VET organisations in the 1990s

Administrative computing in the 1990s in VET	Computing for teaching and learning in the 1990s in VET
Focus in the early 1990s on student information management systems	Focus in the early 1990s on student computer laboratories
Focus in the late 1990s on linking student information with library records, enrolment and finance records	Focus in the late 1990s on learning materials available via the internet
Use of MS-DOS personal computers	Use of a mixture of MS-DOS and Apple Macintosh personal computers
Use of databases in the late 1990s for student and administrative records, finance, human resources and facilities registers	Development in the late 1990s of internet-based learning management systems
Preference for campus-based local area networks in the early 1990s	Preference for CD-ROM delivery of technology-based learning and teleconferencing and videoconferencing in the early 1990s
Preference for wide area networks and secure intranets in the late 1990s	Preference for internet delivery of online learning in the late 1990s

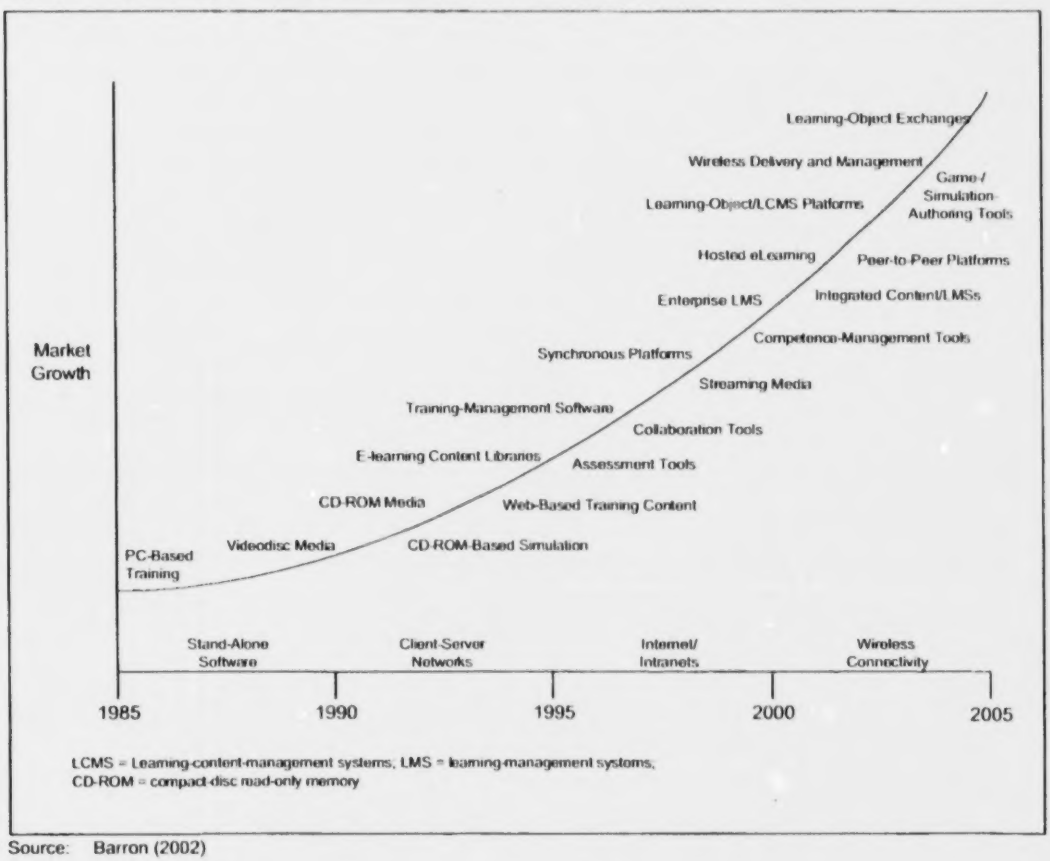
Table 1 highlights the separate path taken in VET in the 1990s by administrative computing in contrast to that taken by computing for teaching and learning. This separation was partly due to limitations of the available technology and partly due to the tendency to see the two functional arenas of administration and teaching/learning as so different as to justify separate computing systems. In the late 1990s, this historical divide contributed to the separate development of e-business and online learning in VET.*

Evolution of technologies for e-learning and e-business

The difference between online learning and e-learning will be discussed in the next chapter. Briefly, online learning is one sub-set of e-learning. E-learning denotes technology-based learning and includes online delivery and CD-ROM and other technologies, ideally supplemented by face-to-face support as appropriate (Mitchell 2001b). In practice, the two terms are often used interchangeably, as will be the case a number of times in this report.

Figure 1 from Barron (2002) shows that the technology used for e-learning moved from the stand-alone software and hardware of the late 1980s, to the internet/intranet environment in the late 1990s. The figure indirectly shows that e-learning technologies have enjoyed a life of their own, mostly disconnected from the technologies used for administration and management. However, some software developers are beginning to merge e-learning technologies, such as learning management systems that store e-learning materials and student records, with the same database which holds student records and all other data within the one VET organisation.

Figure 1: Technology evolution in e-learning



Source: Barron (2002)

In figure 1 some of the e-learning technologies that emerged over the 1980s and 1990s are listed along the slope. The axis across the bottom of the diagram also identifies underpinning technologies that provided the impetus for e-business during that same period. The technologies spurring the development of e-business included the following technology infrastructure, as identified by Turban et al. (2000, p.6):

- *common business services infrastructure*: electronic funds transfer in the 1970s leading to EDI (electronic data interchange) to electronic payments on the web by the 1990s, followed by the development of smart cards and online authentication systems
- *messaging and information distribution infrastructure*: EDI, email, hypertext transfer protocol
- *multimedia content and network publishing infrastructure*: HTML, Java, world wide web
- *network infrastructure*: cable TV, wireless, internet, intranet, extranet
- *interfacing infrastructure for databases, customers and applications.*

E-business was stimulated not only by the infrastructure technology cited above, but also by the commercialisation of the internet in the 1990s with the development of networks, protocols, software and specifications and the explosion in the number of companies with websites in the late 1990s (Turban et al. 2000, p.13).

Discussions later in this report will show that, in the early twenty-first century, educational administrators are starting to connect e-learning technologies with the e-business technologies, often using the same web platform, the same databases and the same software for both e-business and e-learning. However, as the discussion immediately below shows, the drivers for both e-business and e-learning are not just technology: the drivers also include customer demand and organisational objectives. Enabling technologies, customers and new business goals will continue to drive the convergence of e-business and e-learning.

Emergence of the information age

The networking and other technologies available in the late 1990s started to move VET organisations towards the information age, an age based on information and the use of information technologies (Cortada 2001, p.xxi). However, the driving forces for the new information age are not just technology, but new ways to make money and profit or to achieve other business goals (p.xiv). To manage in the information age, Cortada (2001) argues that managers of today need to understand the informational features of economic activity, the emerging value propositions (how profits are made), the effects of globalisation, and the digitisation of many business activities (p.3).

Table 2 summarises the characteristics of the information age, including enablers, customer characteristics and organisational characteristics. The table provides a general backdrop for the emergence of online learning in VET in the late 1990s, discussed in the second chapter, and for the rise of e-business in Australia in the same period, discussed in the following chapter. The table provides the platform for the eventual convergence of e-business and online learning.

In the mid-to-late-1990s, the new information age provided the context for the growth of e-business. The information age also created the preconditions for online learning to develop within a framework where, in the twenty-first century, online learning is one of many online customer services available to students from VET providers and which focus on customer needs.

There is another side to this positive story about the new convergence of technologies, business models and business processes in the information age. In the late 1990s, for a number of reasons documented in *dot.con* by Cassidy (2002), excitement about the use of the internet for a range of purposes such as selling over the internet and for providing online learning, ran ahead of customer

demand. The information age brings with it risks and hype, epitomised by the dot.com boom. Both e-business and online learning have, at times, been caught up in this hype.

While the term 'the information age' sounds positive and attractive, it also brings considerable management challenges. Cortada (2001) argues that most managers in the twenty-first century work in companies that live in two different worlds, the old 'industrial age' and the emerging information age, requiring dual management skills. These management challenges are discussed in the final chapter of this report.

Table 2: Characteristics of the information age

Component	Characteristics of the information age
Preconditions	✧ free trade ✧ cheap capital ✧ relatively good transportation ✧ effective telecommunications networks
Enablers	✧ growth of networked business strategies ✧ increases in individual technical skills ✧ expansion of digital and intellectual assets ✧ continued technological innovation and the use of standards
Customers	✧ have increased access to information ✧ can negotiate better terms and conditions for goods and services ✧ can return goods faster ✧ can change suppliers quicker, more frequently and easier than in the past
Organisations	✧ rely more and more on their ability to co-ordinate cost-effectively across a variety of cross-unit dependencies (e.g. suppliers, customers) ✧ pursue flexibility in responding to market conditions ✧ often do well against the giants of the old environment if they are simple in form and agile ✧ in some cases, eliminate physical assets and employees in exchange for electronic access and construction of telecommunication networks, services and products
Critical success factors	✧ information-based skills ✧ use of knowledge management
Steps for corporate success	✧ profitable pricing becomes more complex and dynamic as it desegregates and differentiates, e.g. airline ticket pricing is more complex ✧ the importance of branding remains as customers seek out trust, relationship, quality and familiarity ✧ branding or co-branding and private labelling approaches are on the rise for target markets of one or few customers ✧ the global visibility of products, services and pricing offers customers the potential to build their own pricing and value propositions (e.g. no two Dell PCs purchased online or by phone need to have the same configuration) ✧ companies are differentiating products by adding services and knowledge to them

Source: Cortada (2001, pp.18–27)

Final comment

E-business and online learning developed separately in VET in the 1990s, based on two sets of technologies, staff and processes. In the early twenty-first century the forces promoting the convergence of e-business and online learning are starting to strengthen. These forces are characteristics of the emerging information age and include the use of electronic technology, telecommunication networks and networked business strategies to improve customer service, to improve organisational efficiencies and to achieve strategic organisational objectives.

Online learning repositioned as a service of customer-centric VET organisations

This chapter focusses specifically on online learning, defining it in relation to e-learning, blended learning, flexible learning and e-business, based on an examination of the literature and current practice.

The discussion identifies a shift in the thinking about online learning by contemporary VET managers. In contemporary vocational education and training, flexible delivery and online learning are commonly viewed as part of a business commitment by VET providers to deliver enhanced customer services. This business philosophy about customer service and the emerging market demand for a range of electronic services are driving both e-business and online learning in VET.

Key points

Key points in this chapter include the following:

- The focus of this study is online learning as a delivery system, not the act of learning.
- Online learning is just one of many front office student services in a VET organisation that conducts business electronically.
- Online learning benefits from organisations conducting many of the business processes in the front office, back office and the supply chain electronically.

Definition of online learning

The terms 'online learning' and 'online delivery' are used loosely in VET. For example, Harper et al. (2000) refer to the different dimensions of online delivery:

> 'Online delivery' in the education context is widely used to refer to all aspects of online activity, including the design, development and implementation of Web materials as well as the teaching and learning activities. (Harper et al. 2000, p.7)

This report does not explore 'all aspects of online activity'. Instead, it focusses on the connections between online learning and e-business and the opportunities for VET to exploit these connections.

Kilpatrick and Bound (2002) usefully distinguish between the delivery of online learning and the act of learning:

> A clear distinction is made between delivery and learning. Online delivery refers to a range of delivery modes where being online (e.g. email, using WebCT, Blackboard and so on) is a component of, or all of the processes designed for learning. Online learning is defined as learning processes, which use online delivery. (Kilpatrick & Bound 2002, p.2)

This study explores those aspects of online learning that either do or can intersect with the principles and applications of e-business, so the focus is on the production, marketing and delivery of online learning, not on the student's learning processes when learning online.

The report also refers to online learning systems, which are taken to mean educational structures that include a web-based or intranet-based technological infrastructure, online course material and online enrolment, tutoring, communication, assessment and administration procedures. Online learning systems often use complementary delivery methods, such as printed course materials.

Relationships with e-learning, blended learning and flexible learning

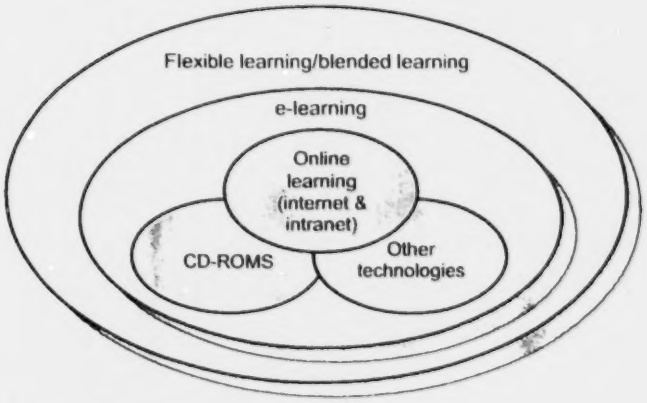
In order to isolate the specific place of online learning as a service within educational organisations, it is useful to identify the relationships between online learning, e-learning, blended learning and flexible learning.

Instead of adopting online learning, the student market in VET is responding more favourably to the concept of e-learning; that is, technology-based learning, including online delivery and CD-ROM and other technologies, supplemented by face-to-face support as appropriate (Mitchell 2000d, 2001c; TAFE Frontiers 2001). The Flexible Learning Advisory Group (FLAG) defined e-learning similarly—as a wide set of applications and processes which use all available electronic media to deliver vocational education and training. It includes computer-based learning, web-based learning, virtual classrooms and digital collaboration and uses (FLAG 2001b).

Research by Mitchell and Wood (2001) suggests that online learning (which is learning delivered via computer networks) has a more secure future if it is located within an e-learning framework (offering a variety of electronic technologies) and nested within a broader flexible learning framework (offering a variety of support mechanisms). Figure 2 positions online learning in this manner.

Beginning in the period 2000–2001, e-learning content developers in the United States of America began promoting the concept of blended learning, which is the combined use of e-learning course materials and other learning support services, such as the use of texts or face-to-face interaction between a teacher or other students. In figure 2, blended learning fits with flexible learning and e-learning.

Figure 2: The relationship between flexible learning, e-learning and online learning, as viewed increasingly by the market



Source: Mitchell and Wood (2001)

Consumers driving convergence

Mitchell (2001c) identified major market trends in the field of VET online products and services and showed that consumers were less interested in focussing solely on online learning and more

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interested in accessing improved, customised services, leading to improved learning outcomes. The market trends included:

- the move towards a more integrated approach to online learning by providers offering not just online content, but support systems, learning management systems and other technologies and administrative mechanisms
- the development of an holistic approach to the provision of student services, not just e-learning services but other services such as online enrolment, online information and online payment systems
- the increasing tendency towards customisation of online products and services, to suit individual learning styles
- students' preference for e-learning and flexible learning, not just online learning
- the personalisation of online products and services, based on providing personal web pages for each student.

(Mitchell 2001c)

These findings show that VET consumers are starting to seek increased choice of services and customised, even personalised service, consumer trends which are typical of customers in the service industries in the information age. These consumer trends are fed by e-business technology and business thinking. Consumers are beginning to drive the convergence of online learning, e-learning, flexible learning and e-business.

Changes to the definition of flexible learning

As illustrated in figure 2, online learning is one aspect of flexible learning, so it is important to note how and why the definitions of the term 'flexible learning' changed in VET over the last decade, hence affecting the way online learning is viewed (Mitchell et al. 2001). In the 1990s, flexible learning was viewed as operating along a closed–open continuum in terms of boundaries of operation, enrolments, learning routes, delivery methods, time and place of delivery, and accreditation. For example:

- Some educational organisations are open to all comers, while some restrict their enrolments to specific markets.
- Some waive entry requirements or recognise prior informal learning; others require the same entry qualifications as conventional organisations.
- Some place no limits on their enrolments; others are constrained by government- or self-imposed quotas.
- Some operate multi-entry, multi-exit models with students choosing what they want to learn and accumulating credit as they explore pathways towards their chosen qualifications; others are quite rigid in their requirements of students.
- Some are flexible in their timelines, allowing students to take years to complete their studies; others set firm entry and completion dates, requiring re-enrolment whenever students fall behind in their studies.
- Some programs are conducted entirely through self-instruction or distance learning; others include face-to-face teaching or practical sessions, on campus or at study centres.

(Mitchell et al. 2001, pp.8–9)

The concept of flexible learning in VET in the early twenty-first century includes all of the above options for flexibility, but the research by Mitchell et al. (2001) and Henry (2001a, 2001b) shows that flexible learning is ultimately contributing to a customer-centric approach to the provision of VET. 'Flexibility' in flexible learning in VET is now primarily about providing extra value to students and other customers.

Drawing on the insights of managers of VET organisations, Mitchell et al. (2001) identify the following additional examples of flexibility derived from a customer-centric approach to the provision of VET:

- Some educational organisations offer customers self-service; others provide a mix of self-service and hands-on instruction.
- Some customise educational opportunities for individuals or groups; others modify generic offerings.
- Some pitch to markets of only one person; others seek mass markets.

(Mitchell et al. 2001, p.9)

Case study research by Henry (2001a) of Sunraysia Institute of TAFE identified a similar shift in the understanding of flexible delivery:

> The established vision of the Institute as a flexible training provider at this time is associated with its commitment to customer responsiveness. Flexible delivery, as a concept, is intertwined with the prior concept of customer-oriented training delivery. Thus a single model of flexible delivery or a narrow definition of flexible delivery is deemed to be inappropriate. Customer responsiveness is the determining concept with flexible delivery being the term used to describe the strategic and practical outcomes. (Henry 2001a)

Henry's (2001b) case study of the Adult Migrant Education Service in Victoria (AMES) showed that flexible delivery is 'now not a stand-alone concept at AMES':

> Flexible delivery has been absorbed into the way AMES does things in 2001. As AMES has diversified as an education and training provider, the organisation transformed itself to meet its purchaser clients' expectations of flexibility. (Henry 2001b)

Complementing the work of Henry, findings from the field research of Mitchell et al. (2001) found widespread agreement in VET with the idea that flexible learning is a philosophy and not simply a methodology:

> Flexible learning in VET is an aid to achieving corporate goals such as improved customer services and enhanced competitive advantage. It is representative of the way business is conducted at the leading edge of VET initiatives today and it is fundamental to the survival of their organisations. (Mitchell et al. 2001, p.10)

According to Mitchell et al. (2001) flexible learning is an essential component of a contemporary VET organisation that:

- is demand-driven not supply-driven
- is market-driven not technology-driven
- is driven by the value proposition for the customer, i.e. 'What is in it for the customer?'
- meets customer expectations for speed, convenience, personalised service and lowest price
- meets customer expectations by enhancing service quality and/or reducing prices and/or improving products
- delights the customer, from the customer's first contact with the organisation, to enrolling, to receiving services, to after-sales service
- seeks repeat business from the customer
- retains customers by offering holistic, integrated, personalised service
- values the life-long relationship with the customer. (Mitchell et al. 2001, pp.10–11)

The recent definition of flexible learning by the Flexible Learning Advisory Group also captures this emphasis on customer responsiveness. The group (FLAG 2001b) defined flexible learning as

characterising education and training which is responsive to client needs and frees up the where, when and how of delivery; it may or may not use electronic technologies to do so.

The customer-driven approach to VET business driving flexible learning is influencing the understanding and delivery of online learning. As discussed in the next chapter, this same business philosophy about the importance of customer service also drives e-business.

Business processes in online learning

Online learning systems are educational management structures that include, at a minimum, an intranet- or internet-based infrastructure and online course material. Online learning systems can include online tutoring, communication, assessment and administration procedures such as tracking and recording student activity. A number of VET organisations around Australia are starting to link such online learning services with e-business processes such as online enrolment, online payment of fees and online access to other student services (Mitchell 2002). TAFE NSW is an example of such an organisation.

A comprehensive online learning system consists of many business processes critical to an organisation's provision of online learning—from design to production, marketing and after-sales service. To illustrate the business aspects of online learning, a sample of business processes in an online learning system are set out in table 3. In the table, the generic business process areas of planning, design, production, marketing, distribution and sales/service are matched with business processes in online learning systems.

Table 3: Sample business processes in an online learning system

Generic business processes	Business processes in an online learning system
Planning	✧ Strategic planning for online learning ✧ Planning of new online courses ✧ Undertaking of benchmarking in online learning
Design	✧ Analysis of students' needs for online learning ✧ Researching students' skills for online learning ✧ Analysis of impact of online learning on disadvantaged groups ✧ Development of risk management strategies for online learning ✧ Development of student performance indicators for online learning ✧ Deciding on whether to develop in-house or to outsource development
Production	✧ Use of effective instructional design ✧ Production of learning materials ✧ Development of online components within mixed mode courses ✧ Selection and customisation of appropriate available products
Systems development	✧ Development of administrative systems for online learning ✧ Systems testing and improvement ✧ Systems integration
Marketing	✧ Marketing of online learning products and services ✧ Marketing of the benefits of online learning blended with other delivery strategies
Distribution	✧ Implementation of online learning ✧ Provision of electronic infrastructure ✧ Provision of professional development
Sales/delivery	✧ Delivery of online learning products and services ✧ Provision of student induction ✧ Assessment of online courses
Service	✧ Provision of ongoing student support ✧ Development of cost-effectiveness analyses of online learning

Some of the generic business processes cited in table 3, such as design, occur in the back office of the organisation, while sales, delivery and service activities occur in the front office. Other business processes, such as outsourcing of the production of learning materials, are influenced by suppliers or partners in the supply chain. Table 3 underlines how online learning consists of business actions in the supply chain and the back office, as well as actions in the front office. If conducting any of these business actions electronically results in increased speed or efficiency or quality, e-business can be a positive assistance to online learning.

Front office, back office and supply chain

To understand more of the connections between e-business and online learning, they need to be seen in relation to the front office, the back office and the supply chain. Figure 3 captures the three organisational domains where e-business, or 'doing business electronically', occurs. In the front office e-business assists with the interaction with customers, in the back office it performs functions such as the provision of internal financial services, and in relation to the supply chain, e-business assists the process of interaction with suppliers and partners (Mitchell 2002).

Figure 3: Three domains where e-business occurs in the organisation

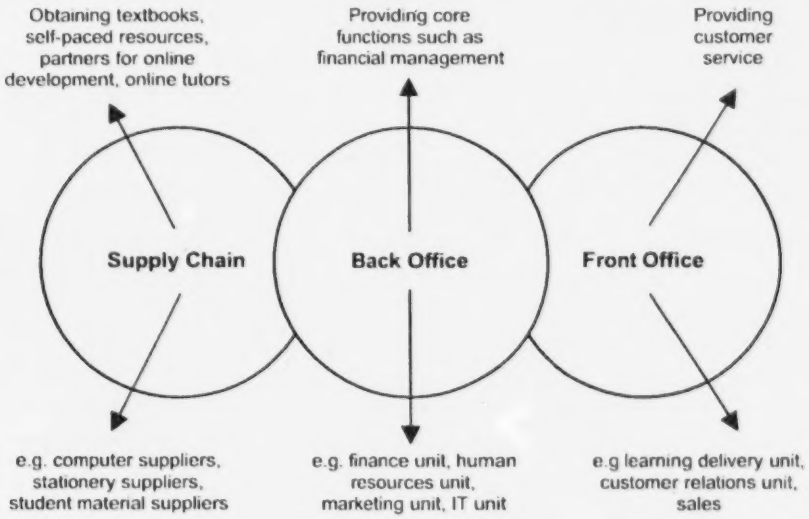
Obtaining textbooks, self-paced resources, partners for online development, online tutors
Providing core functions such as financial management
Providing customer service
Supply Chain
Back Office
Front Office
e.g. computer suppliers, stationery suppliers, student material suppliers
e.g. finance unit, human resources unit, marketing unit, IT unit
e.g learning delivery unit, customer relations unit, sales

Figure 3 demonstrates how e-business can support online learning in the three domains of the supply chain, the back office and the front office. Many aspects of online learning systems, such as online enrolment, tutoring, communication, assessment and administration procedures, require the co-ordination of back office and front office systems and functions and relationships with suppliers in the supply chain.

Online learning is only one front office service that can be delivered electronically, as WestOne in Western Australia demonstrates. This organisation is assisting VET organisations to implement a range of electronic services in addition to online learning, such as online enrolment, online assessment and online payment of fees. WestOne provides services that assist VET providers in their front office, back office and supply chains.

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WA's WestOne's online services for the front office, back office and supply chain

WestOne Services (WestOne) assists TAFE colleges and other organisations in Western Australia to implement online learning and to access e-business technologies and services.

WestOne assists VET organisations to extend the number of *front office* services beyond online learning. Business products offered by WestOne include online enrolment, online admissions and continuous admissions through the WestOne Student and Corporate portal product. In addition, a revised skills recognition tool will enable users to analyse their skills and to be assessed online against training packages by a nominated registered training organisation and the GetAccess service provides high quality, cost-effective career, employment and labour market information, enabling users to view up to 300 career profiles.

WestOne assists VET organisations to improve efficiencies in their *back office* by providing a business process re-engineering service, accompanying the implementation of customer-focussed facilities such as online product and service catalogues, a single-point student identity management system, and customer-managed (both online and on-campus) enrolments for short, award and ACE courses.

WestOne uses electronic communication as a partner in the *supply chains* of VET organisations. WestOne works with partners to source, develop, produce and distribute state-of-the-art learning resources and technology-enabled learning solutions. Partners of WestOne are assisted and supported in applying digital technology to provide efficient, customer-focussed training programs, processes and services.

WestOne is modelling good practice in using e-business to satisfy the holistic needs of the student, not just students' interest in online learning. For instance, WestOne is currently facilitating internet and email access for TAFE students throughout Western Australia.

Final comment

Online learning systems should be viewed as one among many front office services that are integrated with processes in the back office and the supply chain. VET staff managing online learning systems are developing an understanding of business processes and a contemporary customer-centric business philosophy. Research by Mitchell et al. (2001) and Henry (2001a; 2001b) shows that many VET managers have now positioned online learning as one, specific service of customer-centric, demand-driven VET organisations.

E-business embraced by customer-centric, efficiency-conscious VET organisations

This chapter defines e-business and explores new business models relevant to VET arising from the practice of e-business. In conjunction with other chapters in this report, the discussion provides examples of how new and emerging e-business models and solutions could enhance the delivery of, enrolment in, and the management of online learning systems in VET in Australia.

Key points

Key points in this chapter include:

- A number of VET organisations in Australia are using e-business to improve efficiencies in their supply chain, to improve their customer relationship management, to integrate their back office functions and to improve their procurement practices. These e-business practices often impact directly or indirectly on the delivery of online learning.
- This positioning of online learning as one component of an integrated, e-business approach of a customer-focussed organisation complements the previous emphasis in VET on stimulating the adoption of online learning by improving pedagogy and quality measures.

Significance and pitfalls of e-business

The availability of global communication networks, the expansion of global and national online markets, the emergence of different business models to take advantage of the new technology and the new markets, and the desire of governments and businesses to provide enhanced services for customers are propelling the growth and development of e-business nationally and internationally (NOIE 1999b). This growth is set to continue at a rapid rate, as every day, more and more systems, individuals and companies worldwide are linked electronically (Kalakota & Robinson 1999).

E-business is impacting significantly on a wide range of industries in Australia and around the world. It is also expanding the scope of some occupations, creating new occupations, and over the next decade will result in the restructuring of entire industries (Mitchell 2000g). In some cases it will change the way business is conducted, lower costs, increase efficiencies, reduce inventories, expand market reach, increase speed to market and provide competitive advantages (NOIE 1999a).

There are, of course, pitfalls, dangers and challenges associated with the new field of e-business, and considerable management is required to realise the benefits possible from its adoption (Mitchell 2002). The pitfalls include overestimating customer demand for electronic services, as happened so widely leading up to the collapse of so many 'dot coms' in 2000 (Cassidy 2002). These pitfalls and risks are addressed later in this report.

For the Australian vocational education and training sector, there is value in drawing from the new thinking emerging from the field of e-business. The range of business processes, strategies and models that e-business encourages, particularly the emphasis on integrating the front office, back office and supply chain, potentially can reposition and strengthen online learning systems within VET organisations. For instance, online learning systems sometimes enjoy only a peripheral position

in a VET organisation, and are viewed as a luxury not a necessity. In an e-business-oriented VET organisation, however, online learning systems can become a valuable part of a customer-focussed organisation that uses electronic communication to provide an array of services to the individual student and to the community (Mitchell 2000e; Mitchell et al. 2001).

The following discussion provides some definitions of key terms and a summary of the characteristics of e-business in relation to VET. The discussion identifies further links between e-business and online learning.

Definition of e-business

Definitions of e-business and e-commerce shifted over the last three years and will continue to change, affected by new technologies and new business practices and models. In 1998, e-commerce was typically defined as selling on the internet (for example, Lawrence et al. 1998). In April 1999 the National Office for the Information Economy (NOIE) asserted that e-commerce was every type of business transaction conducted electronically, a definition that focusses on the technological aspects of e-commerce (NOIE 1999a). A fuller definition was then provided in the 1999 report, *E-Australia.com.au* (NOIE 1999b). This definition widened the scope of e-commerce and also included inter-company and intra-company activities such as marketing, finance, manufacturing, selling, and negotiation (NOIE 1999b). The new emphasis on the business principles behind e-commerce saw technology as the enabler; for example, 'e-commerce is about different and more efficient ways of doing business … over networks and through computer systems' (NOIE 1999b).

This definition, whereby e-commerce is about better ways of doing business, has been further refined and clarified by Mitchell (2002) who uses ideas from Timmers (1999), Craig and Jutla (2001) and Kalakota and Robinson (2001) in developing the following definition, in which e-business is taken to mean:

- *conducting* business electronically, both within an organisation and externally, with clients, communities and partners
- *through* re-designing business processes and the use of information and networking technologies
- *in order to* achieve business goals such as improving efficiencies, reducing costs, increasing speed of transactions, expanding markets, enhancing business partnerships and, most importantly, providing additional value for clients. (Mitchell 2002, p.v)

This definition shows that, although technology provides the opportunity for new business approaches, the technology needs to be driven by business goals and business processes. Similarly, Kalakota and Robinson (1999) maintain that 'e-business is about redefining old business models, with the aid of technology, to maximise customer value' (p.4).

For the purposes of this report, the two terms 'e-business' and 'e-commerce' will be used interchangeably to mean 'conducting business electronically, both within an enterprise and externally', although the preference is for the term e-business.

Features of e-business

The following features of e-business have implications for VET managers.

Scope

E-business is a management issue as it can impact on all aspects of the organisation. VET managers need to have a clear understanding of how e-business technology and processes can assist in the achievement of business goals. As Mitchell (2002) notes:

- **E-business is primarily a business issue, not a technological issue.** Technology provides the opportunity for new business approaches, but business goals and business processes are needed to drive the technology. There is a role for educational administrators to take charge of e-business, to develop business goals and processes, and not to delegate the entire matter to IT personnel.
- **E-business occurs in and connects three business domains**: the back office, the front office and the supply chain. One of the challenges of e-business is the need to consider the connections between these three domains. The connections include both work processes and the use of technology. (Mitchell 2002, p.90)

Challenges

E-business is challenging because it requires new staff skill sets. Furthermore, as Mitchell (2002) notes, it has the potential to change jobs, services, enterprises, industries, business relationships and customer service expectations.

- **E-business is impacting heavily on service industries.** E-business is not only creating new jobs and businesses; it is also changing entire industries, such as the entertainment, hospitality and finance industries. All of these industries are service industries, suggesting that other service industries such as education and health will also be greatly affected by e-business.
- **E-business requires new relationships.** In an e-business environment, staff in the front office and those in the back office need to collaborate more. Staff within the organisation need to collaborate with their partners in the supply chain. To benefit from e-business, educational administrators need to encourage and manage these new relationships.
- **E-business relies on partnerships.** E-business thrives on collaborative uses of common technological platforms and business processes. The need to collaborate and form new partnerships to realise the benefits of e-business may be at odds with competitive organisation structures and mindsets.
- **E-business requires a convergence of skill sets.** To respond to the possibilities and challenge of e-business, staff with a range of different skill sets need to work as a team: e.g. staff from business administration, information technology, stores, accounting customer service and marketing. A climate of trust and openness is required for this teamwork to develop. (Mitchell 2002, p.90)

Opportunities

The benefits of e-business include improving relationships with customers not just in the short term, but for life. To gain these benefits requires long-term planning. As Mitchell (2002) notes:

- **E-business raises the bar in terms of customer service.** The use of databases and electronic communication between service providers and customers is creating new levels of customer service, in terms of speed, convenience and breadth of services. To meet rising stakeholder expectations, educational administrators will be increasingly required to identify new and improved customer services that can be provided electronically.
- **E-business provides the possibility of a relationship for life with customers.** The ease of electronic communication with customers, both during and after a course of study with an educational institution, will encourage educational administrators to seek to achieve a relationship with their customers, for life.

- **E-business benefits can be profound and long term.** E-business can potentially alter jobs, modify customer services and change business processes, evidenced by service businesses such as stockbroking, travel agencies and banking. Educational administrators are advised to plan for and monitor the long-term impact of e-business on their own organisations.

(Mitchell 2002, pp.90–91)

The box below sets out the many web services provided to students at Swinburne University of Technology, thereby highlighting the opportunities provided by e-business.

Web services

- course brochures—request detailed course brochures electronically
- email forwarding
- enrolment, re-enrolment, secure payment (due year end)
- library e-catalogue, view/renew items on loan, view/place/cancel holds, access e-resources via hot links on the catalogue, access to free and restricted resources and on line reserve
- online course and subject materials
- part-time employment and job searching
- short course enrolments
- student results
- student self allocation to classes
- student timetables online

Web information services

- accommodation—housing services
- accommodation—residences
- alumni
- awards venues and schedules for ceremonies
- calendars
- campuses—contact details for campuses and links to campus descriptions
- careers adviser information
- child care facilities
- computing information
- course finder—a complete guide to the full range of studies available
- course information—links to information on all courses at all campuses including adult and continuing education and distance and on line programs
- credit transfer—database of credit available for study at other institutions
- departments, schools and research centres—links to each of the university departments, schools, research centres, and corporate units
- health services
- how to apply—application procedures for higher education and TAFE courses
- industry consulting services
- international student information on admission, orientation and welfare of all international students
- news and events
- parking
- past exam papers
- policies and procedures
- public transport
- sport and recreation
- student administration forms
- student finance
- student union
- study support
- Swinke—eNews, views and profiles
- TAFE services to industry
- virtual campus tour.

Clearly, Swinburne University of Technology has taken advantage of the considerable opportunities offered by e-business to provide a compelling suite of customer services.

Basic business models

In relation to the VET sector, there is a potential for a number of the business models emerging from the field of e-business to lead to the development of new and improved business processes and systems for providing quality, client-focussed education products and services.

The term 'business model' needs clarification. Recognising that the usage of the term in relation to e-business is inconsistent in the literature, Timmers (1999) provides some clarity with the following definition, in which 'business model' is taken to mean:

- an architecture for product, service and information flows, including a description of the various business actors and their roles
- a description of the potential benefits for the various business actors
- a description of the sources of revenue. (Timmers 1999, p.32)

Although Timmers (1999) provides a framework for understanding business models, Mitchell (2000b) maintains that the term 'business model' is viewed differently in practice, as opposed to the theory:

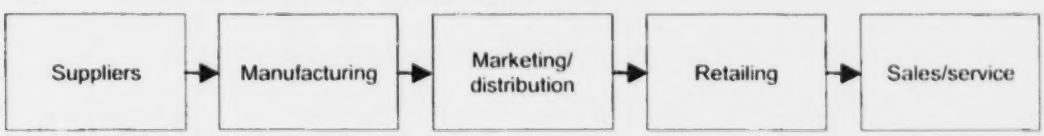
> In theory, business models are conceptual frameworks for planning, marketing and managing business operations. In practice, the term 'business model' is used loosely in conversation to highlight just one process of a business, such as its unique marketing or service strategies. (Mitchell 2000b, pp.2–3)

For example, the business model used by the multinational computer provider, Dell, is often reduced, in public discussion, to the single feature that Dell avoids shop-front retailing and sells directly to the consumer. In reality, the Dell business model is as complex as Timmers' (1999) definition above, involving a range of innovative strategies and approaches to forming alliances, sourcing materials and performing other business functions (*Harvard Business Review* 1998). The looser, popular definition of business models is used in this report.

Traditional concepts of business models differ from e-business models. Traditional business models follow a linear progression from product design and production to marketing, distribution and sales. With traditional business models, business processes are often not integrated, standing in isolation from one another. In contrast, the new business models to emerge as a result of electronic communication over a computer network connect the design, production and delivery of products and services with the needs of the organisation, enabling it to operate as an effective business. Figures 4 and 5 demonstrate the difference between the two business models.

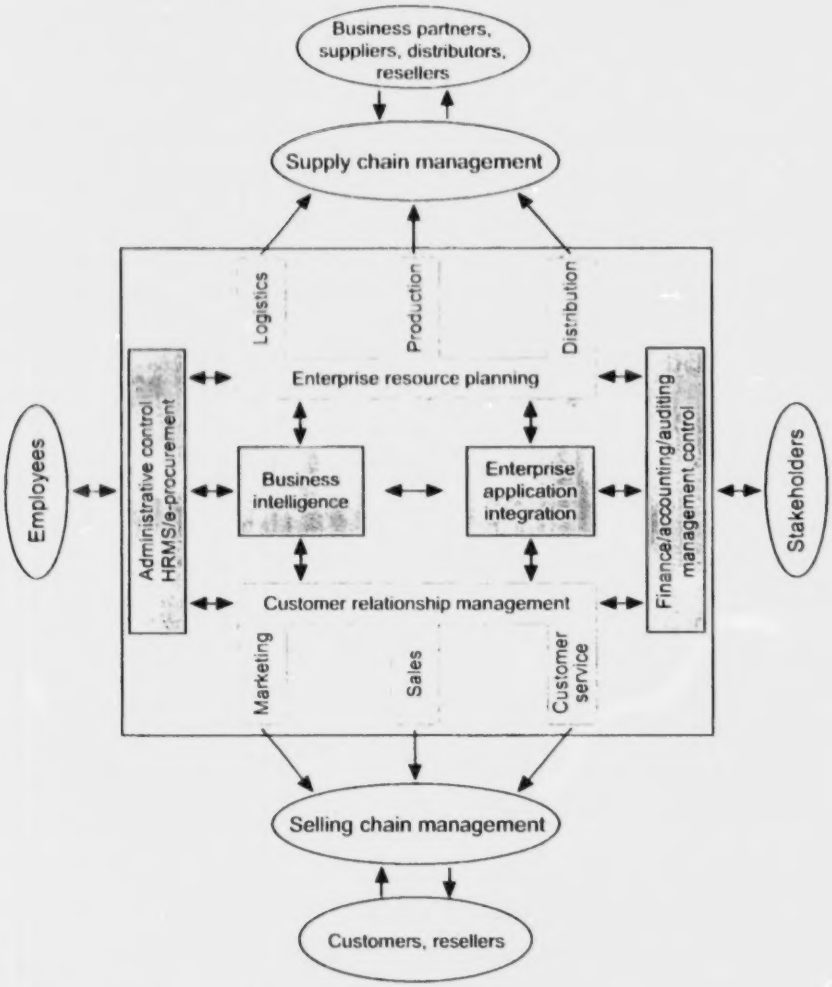
The traditional business model of the value chain is depicted in figure 4—as a linear process from accessing the raw material to selling the finished product. The value chain is defined below.

Figure 4: Traditional linear business model of the value chain



An integrated e-business model for an enterprise is provided in figure 5. The model describes much more than the traditional linear business model. The model shows how customers and customer services—such as online learning in the VET sector—are connected to and can be enhanced by the performance of interconnected, electronic business functions inside the organisation. The model moves away from the linear traditional business model by identifying connections between the following groups: business partners; suppliers and distributors; stakeholders; employees; and customers.

Figure 5: Integrated e-business model for an enterprise



Source: Based on Kalakota and Robinson (2001, p.164)

The above model given in figure 5 shows the interconnections between different functions within an enterprise, such as logistics, marketing and customer service. Online learning systems—often viewed as a front office customer service in a VET organisation—can be enhanced by ensuring that all business processes of the organisation are co-ordinated, so that customer service is enhanced.

This approach to online learning as one component of an integrated approach of a customer-focussed organisation complements the common approach in VET—that an emphasis on pedagogy and quality measures will have an impact on the expansion of online learning (for example, Harper et al. 2000; Cashion & Palmieri 2002; Brennan 2002). Being part of a powerful, integrated e-business model could significantly enhance the customer benefits of online learning provided in VET.

Managing information along the value chain

Much of the e-business literature (for example, Kalakota & Robinson 2001; Tapscott 1999; Cunningham 2000) stresses the need for a customer-centric business model. The way organisations

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collect and manage information is a key component of any customer-centric business model, and one which enables organisations to be effective, profitable and sustainable.

In a rapidly changing business environment, companies are realising that the fastest and most effective way to deliver dramatic business benefits is to bridge the information divide between customers, back office operations and the supply chain. According to Kalakota and Robinson (2001), e-business design is about integrating the intricate set of business processes that occur along the value chain so they work together to manage, organise, route and transform information (p.113).

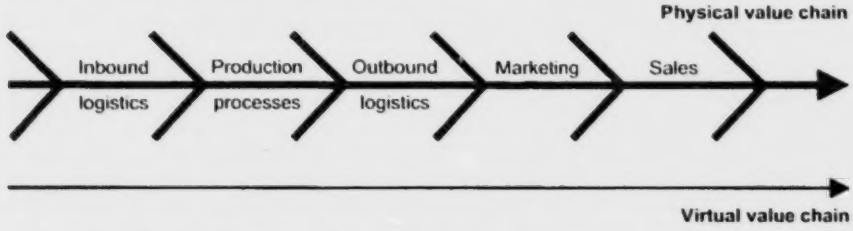
The value chain describes a series of value-adding activities connecting a company's supply side (raw materials, inbound logistics and production processes) with its demand side (outbound logistics, marketing, sales).

Rayport and Sviokla (1999) explore how changes to the traditional value chain are affecting organisations and their ability to manage and add value to information. In the traditional physical value chain, information is treated as a 'supporting element of the value-adding process, not as a source of value itself' (p.36). With the advent of the internet, however, information can be managed across an organisation and can be used to inform each stage of the value chain.

By being aware of the value chain, businesses can collect data and add value to it, for example, by developing enhanced customer relationships and by providing a suite of tailored services to their customers and clients (Mitchell 2002). According to Rayport and Sviokla (1999):

> When companies integrate the information they capture during stages of the value chain—from inbound logistics and production through sales and marketing—they construct an information underlay of the business. This integrated information provides managers with the ability to 'see' their value chains from end to end. (Rayport & Sviokla 1999, p.39)

Figure 6: The physical and virtual value chain



Source: Rayport and Sviokla (1999, p.39)

Rayport and Sviokla (1999) note that, with an integrated information underlay in place, companies can begin to perform value-adding activities more efficiently and effectively through and with information:

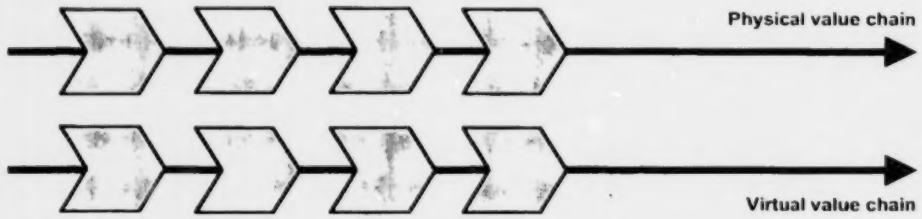
> In other words, those information-based activities mirror steps in the physical value chain. When companies move a number of value-adding activities from the marketplace to marketspace, they exploit a virtual value chain. (Rayport & Sviokla 1999, p.41)

Figure 7 shows the virtual value chain assuming much higher prominence in an organisation, equal to the physical value chain.

The information underlay—the virtual value chain—described by Rayport and Sviokla (1999) enables organisations to integrate the front office with the back office and the supply chain. Mitchell (2002) provides six case studies of educational organisations in Australia increasingly exploiting this virtual value chain through vigorous use of their website, email, data warehouses and other electronic communication. Mitchell (2002) finds that:

> Australian educational organisations are also starting to exploit more fully the electronic information they have internally, that might be of value to customers; and information they have about the customer that may enable the organisation to offer the customer new, improved and enhanced services. (Mitchell 2002, p.89)

Figure 7: Exploiting the virtual value chain



Source: Rayport and Sviokla (1999, p 41)

Efficiencies in the supply chain assist online learning

The previous discussion in this report highlighted the front and back offices, but not the supply chain. The supply chain is an integral part of the value chain described above and encompasses all of the activities associated with the flow and transformation of goods from the raw materials stage all the way to the end user (Turban et al. 2000, p.201). Supply chain practitioner, Toyota's Angus Bissland, provides the following definition:

> The goal of the supply chain is to increase customer satisfaction, and by doing so to create excellent 'word of mouth' advertising. Often this customer satisfaction is created by having both a very efficient supply chain (e.g. so that goods arrive on time) but equally important is the need to create flexibility for the customer in terms of providing information to them about the product and its delivery—information they can access when they like. The supply chain covers everything from obtaining the raw materials, to delivering the finished product to the customer, and the five key components of the supply chain are planning-forecasting, sourcing-purchasing, making, selling and delivering. (A Bissland, email correspondence, July 2002)

Creating flexibility for the customer is not only a goal of supply chain management, it is also a goal of online learning, which can create greater flexibility and access for the learner (email correspondence from Judy Bissland, July 2002).

As Turban et al. 2000 note, e-business has the potential to improve efficiencies in three different parts of the supply chain:

- *upstream activities* involving accessing material and service inputs from suppliers
- *internal activities* involving the manufacturing and packaging of goods
- *downstream activities* involving the distribution and sale of products to distributors and customers. (Turban et al. 2000, p.201)

Examples of improved efficiencies in the supply chain, derived from e-business are:

- *Upstream*: organisations such as Douglas Mawson Institute of Technology in Adelaide are exploring ways in which e-procurement can improve efficiencies in accessing goods and services from their suppliers to their Furnishing School (see Mitchell 2002). Some VET organisations are considering online recruitment and the online sourcing of learning resources.

- *Internally*: a range of Australian VET providers such as the Open Learning Institute in Brisbane are seeking to reduce the costs of issuing printed materials to external students by exploring ways to prepare and provide materials online. This is an example of customisation of learning resources, linking 'value-add services' to online learning.
- *Downstream*: organisations such as WestOne in Western Australia are implementing online payment of student fees and assisting VET organisations with the delivery of e-learning.

Online learning, as a set of business processes, includes the use of a supply chain, which can be, in part, an e-business supply chain. For instance, a VET provider delivering online learning could have upstream activities such as accessing online resources from contractors–suppliers; internal activities such as loading learning resources on to a website; and downstream activities such as selling online courses via a website. Online learning can benefit from e-business processes in the supply chain.

It is interesting to note that the goals for supply chain management and online learning are similar:

> The goals for Supply Chain Management (e.g. effective and individualised delivery of goods to the customer, customer satisfaction, flexibility for the customer) are identical to some of the goals for online learning (access learning whenever I want; proceed at my own pace).
> (email correspondence from Judy Bissland, Swinburne University of Technology, July 2002)

Three popular components of e-business

In the National Office for the Information Economy scoping study of e-business in education, Mitchell (2002) found that the three most popular components of e-business for educational organisations are customer relationship management (CRM), enterprise resource planning (ERP) and e-procurement. Each of these components is discussed below.

The following discussion identifies additional ways in which online learning can be connected to e-business. The discussion shows that a number of VET organisations in Australia are using e-business to improve their customer relationship management, to integrate their back office functions, to improve efficiencies in their supply chain and to improve their procurement practices. The development of these practices assists the delivery of online learning, sometimes directly, other times indirectly, as discussed below.

Some cautions about the management challenges and risks associated with these components are also raised.

Customer relationship management

Customer relationship management (CRM) sits across the front and back offices and has been described as 'a technology-enabled e-relationship strategy' (Kalakota & Robinson 2001, p.172). It is one of the building blocks of e-business. Previously defined as using databases of customers' details to expand sales, customer relationship management is now seen as a way of restructuring the organisation to better manage relationships with customers. Effectively implemented and managed, customer relationship management can enable an organisation to become more customer-centric and demand-driven and less product-centric and supply-driven (Mitchell 2002).

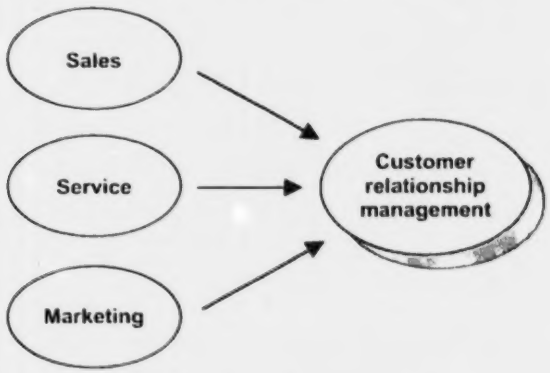
The three goals of the customer relationship management business framework are to:

- use existing relationships to increase revenue (it is cheaper to sell to an existing customer than to find a new customer)
- use integrated information to provide excellent service
- provide consistent, replicable sales channel processes and procedures.

(Kalakota & Robinson 2001, p.173)

The three main components of customer relationship management are sales, service and marketing, as highlighted in figure 8.

Figure 8: Elements of customer relationship management



Source: Adapted from Kalakota and Robinson (2001)

According to Kalakota and Robinson (2001), putting a customer relationship management system into practice requires developing a set of integrated applications to address all aspects of the front office, including automating customer service, field service, sales and marketing (p.173). This leads to more effective marketing, sales and customer service, 'enabling a customer experience that builds loyalty' (pp.179–80).

Mitchell (2002) provides a case study of an educational organisation—the Securities Institute of Australia (SIA)—in which the customer relationship management framework clearly integrates with and enriches the other functions and processes of the organisation. An excerpt from the case study is provided below. The excerpt shows the breadth of customer services made possible by this kind of framework.

The Securities Institute of Australia, a membership organisation and specialist provider of financial services and related education courses, recently took the unusual step of buying and modifying an off-the-shelf customer relationship management system to provide a range of functions, including a student management system. Prior to the development of the customer relationship management system, customer relationship management capabilities within the Securities Institute were limited, due to the lack of centralised information, lack of flexibility in its information systems and inadequate information. The customer relationship management system now provides an opportunity for the Securities Institute to improve information handling, improve relationships with customers and reduce manual processes.

In relation to the Securities Institute case study Mitchell (2002) provides the following description of the implementation of the system:

> The first stage of the implementation of the CRM system includes a central location to:
>
> - access and manage information about students, practitioners, members and prospects
> - capture and maintain multiple addresses against each contact
> - capture and maintain multiple phone numbers against each contact
> - track demographic information (e.g. market sector geographic region) against each customer
> - maintain one running tally of continuing professional development points against each individual
> - provide systematic address validation and formatting.

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The second phase of the project, in 2001, involved the implementation of the Customer Portal and the redevelopment of the website and the following functions:

- customer portal functionality: lead capture and order processing
- customer functionality: online product catalogue; order processing
- additional services: product registration; order history; profile management; online product and literature catalogue; web self-help; online service support.

With the implementation of the second phase of the project completed in late 2001, a student is able to use the site to find out information about the Institute and its products; search for a type of course to suit his/her needs; register interest to be notified about when an event might be available in their area; enrol in a course and a subject; apply for membership; find a program to suit his/her needs by answering a number of questions; email an interesting part of the site to a friend; communicate with other students using a moderated web based forum; change their contact details; and view their timetable and results. (Mitchell 2002)

Importantly for the Securities Institute, given the competition in the marketplace for finance-related courses, the institute's comprehensive approach to customer relationship management may enable it to get to know students better than is possible for its competitors. For the institute, one major connection between online learning services and e-business is that online learning services can be a customer service that is managed and delivered via a comprehensive customer relationship management system.

The pitfalls associated with this system include the difficulty of developing one which is cost-effective to build and maintain, easy to implement and flexible enough to cope with a variety of different types of students. Very few Australian VET providers have successfully implemented a customer relationship management approach. Mitchell et al. (2001) comment:

> Despite the popularity of the customer-focused principles that underpin CRM, very few educational organisations in Australia are using or planning to use comprehensive CRM strategies. There are some very sound reasons for this reluctance: customising a CRM package is expensive and a wholesale approach to CRM is difficult to implement, as it requires a substantial re-engineering of existing business processes and a technology infrastructure that lends itself to integration. (Mitchell et al. 2001, p.64)

One VET organisation that has successfully implemented a customer relationship management system is the Open Learning Institute in Queensland, described later in this report.

On the other hand, Mitchell et al. (2001) note that, if a comprehensive adoption of this framework is not feasible, the principles can be used to inform various organisational processes in VET.

Enterprise resource planning

Enterprise resource planning is the technological backbone of e-business in the back office. It was common during the 1990s to find the computing software for the finance department was different from that used by the human resources or stores departments. According to Kalakota and Robinson (2001), enterprise resource planning 'overcomes the integration challenges posed by disconnected, uncoordinated back office applications that have often outlived their usefulness' (pp.239–41).

In a commercial enterprise, enterprise resource planning streamlines business processes, facilitates better co-ordination within an enterprise, improves customer service and, in general, enhances a company's bottom line. Kalakota and Robinson (2001) explain that for large companies, enterprise resource planning speeds communications and the distribution and analysis of information,

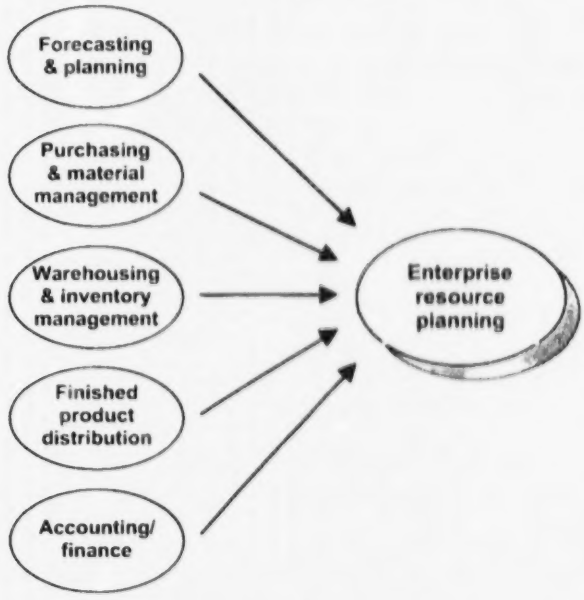
> … facilitating the exchange of data across corporate divisions by unifying the company's key processes—product planning, logistics, accounting and financial services, human resources and sales distribution. (Kalakota & Robinson 2001, p.240)

By co-ordinating these functions through data warehouses and sophisticated portals that give easy access to crucial data, applications and processes, 'managers are able to know what's going on in the farthest reaches of their businesses' (Kalakota & Robinson 2001, p.243).

While the ability to enhance the management of internal processes is one benefit of implementing an enterprise resource planning system, enterprise resource planning also benefits many of the external processes of an organisation. Turban et al. (2000) argue that this system assists with customer relationship management by offering customers a more efficient and higher-quality level of service, including the ability to order products online and to inquire about product pricing and the status of an order.

The following diagram notes the major business functions that benefit from enterprise resource planning.

Figure 9: Enterprise resource planning



Source: Adapted from Kalakota and Robinson (2001)

Mitchell's (2002) case study of the enterprise resource planning used by the Tasmanian Department of Education, showed how online learning is one of the beneficiaries of the powerful data warehouse used behind the scenes. Online learning students are not only able to access substantial material via the warehouse, they are also provided with extra services that were only available because of the new, integrated technology.

Balancing the benefits of enterprise resource planning is the finding that, in practice, it is a complex and often expensive approach, which mostly suits large, centralised bureaucracies.

E-procurement

E-procurement is another of the e-business building blocks that attracts Australian educators (Mitchell 2002). E-procurement involves the ordering of goods electronically, ideally using a web-based platform, involving suppliers providing online catalogues and buyers ordering online. E-procurement differs from traditional methods of purchasing supplies, which involve the preparation of a paper-based order, manual authorisation of the order and the manual dispatch of the purchase order. Such ordering occurs manually between the different steps in the traditional supply chain.

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E-procurement not only eliminates manual keying-in of orders. According to Mitchell (2002), the use of e-procurement for ordering often enables purchasers to avoid some of the 'middlemen' stages of the supply chain in that 'the buyers, avoiding retailers, marketers and distributors, places the order directly with the manufacturer—a phenomenon called "disintermediation"' (p.80).

E-business analysts (for example, Turban et al. 2000; Kalakota & Robinson 2001) identify many of the benefits of e-procurement, including:

- ✧ reducing the processing costs associated with buying and invoicing, for both purchasers and suppliers
- ✧ increasing the speed of transactions and payment
- ✧ capturing information about the pattern of purchasing and prices, to enable purchasers to make more informed decisions about best value.

Mitchell (2002) examines the impact of e-procurement within an educational organisation in his case study of the South Australian technical and further education (TAFE) system. In the case study, the impact of e-procurement is not only felt in the ordering and stores sections, but can have a beneficial ripple effect on other back office functions such as the finance and human resources divisions.

> Douglas Mawson Institute of Technology volunteered to be the TAFE trial site for the implementation of E-Purchase SA in 2001, a system which will enable the Government and its suppliers to move progressively to an online buying environment.
>
> With encouragement from the Stores section, the Furnishing School at the Marleston campus of DMIT, near Adelaide airport, is the focal point of the impending e-procurement trial. The school spends around $0.5 m per annum on timber, hand tools, power tools, fabrics, polishing and hardware for student use. Over thirty different suppliers, who are now being invited to participate in the E-Purchase SA system, supply the goods. Before the project commenced only one of the thirty suppliers has [sic] an online catalogue.
>
> Gary McPhee, DMIT Contracts and Procurement Manager, sees e-procurement as a just-in-time way to minimise inventory and to remove opportunities for theft. Chris Dunbar, Manager of the Furnishing School, believes that e-procurement will result in 'quicker servicing of orders' and a benefit will be simplicity: 'knowing that when you press the button once the order process will be initiated.'
>
> Gess Carbone, Manager Corporate Services, is looking to increase productivity and lower overheads in the back office. 'We are looking to exploit technology in order to get out of labour intensive processing, say, of invoices. Spare capacity can be directed towards value-adding activities to support education. Everything we do in the back office has a direct roll-on effect to the provision of education by the Institute'. (Mitchell 2002, pp.20–21)

It is interesting to note that the main proponent of the e-procurement trial at Douglas Mawson Institute of Technology, the corporate services manager, believes that time saved in the back office can be re-allocated to assisting students in the front office, including online students.

The corporate services manager added the following update in mid-2002, providing a timely reminder of the extensive work required to implement e-procurement in a VET organisation, given that e-procurement is one of the more straightforward components of e-business.

> With respect to the E-procurement pilot not a great deal has changed; we are still trialling the product with one of our business units. The staff involved with the trial are happy and now confident with the product. The issues for resolution are still the masterpiece interface. In any event this trial is certainly giving us the impetus to examine our business processes now and devise new methodology that will enable maximum exploitation of the electronic feature in the future.

Challenges remain such as:

- centralisation v decentralisation of purchasing
- delegations levels
- training of the broader Institute community
- new roles and responsibilities of current purchasing staff that enables them to move from transaction processing to value adding to the corporate spend and
- positive effect on the bottom line.

These are fundamental change management issues that will require resolution prior to any major departure from past practice. In my view necessary and progressive ones at that.

(email from G Carbone May 2002)

The benefits of e-procurement systems such as releasing staff from manual processing need to be weighed against the challenges of changing the habits of staff and suppliers.

Connections with and challenges of the world wide web

The pervasiveness of the world wide web deserves special attention in this report. The connections between e-business and online learning include their common use of the electronic medium and the influence on both of the world wide web. While e-business is much more than the use of the web and includes all business processes conducted electronically, the world wide web has emerged as a major tool for conducting many business-to-consumer activities and business-to-business activities. Online learning is learning that uses electronic technology, via computer networks. While online learning can be delivered and accessed across an intranet, and does not need to use the web, the web has opened up new possibilities for educational delivery. Mitchell et al. (2001) argue that the delivery and support of online learning was enhanced by the development and availability of the world wide web:

> The world wide web emerged as the most versatile educational technology to date. From the perspective of increasing access to learning, the web is most exciting as a medium for not only delivering learning materials to students no matter where they live, but also for catering for niche or small markets as well as mass markets. (Mitchell et al. 2001, p.7)

Mitchell et al. (2001) note that the opportunities presented by the world wide web are numerous and increasing:

> For instance, from a teaching and learning perspective, the web platform offers a variety of communication options such as asynchronous (time delayed) email, synchronous (instantaneous) chat sessions and archived files, so that learners have more options and teachers and trainers can be more creative in the way learning is facilitated.
>
> (Mitchell et al. 2001, p.7)

Mitchell et al. (2001) also caution that, just as the web technology platform provides more opportunities than any previous educational technology, it also creates more management challenges than any previous technology. Much of the focus in VET over the last few years has been on assisting staff to develop skills in using online technologies and in developing content for online courses, both of which are essential—but a greater focus is now required on the increasing management demands of online learning.

Online learning presents VET managers with both opportunities and challenges with regard to providing flexibility for students. As Mitchell et al. 2001 note, the management challenges include:

- identifying market demand for online learning
- modifying strategic and business plans to match the changing market demands
- developing a mix of products and services for online learning that match market segments

- providing leadership to staff who are not experienced in using the online medium
- identifying resource implications of providing online learning. (Mitchell et al. 2001, p.8)

Judy Bissland from Swinburne University of Technology has identified the following additional challenges:

- identifying and promoting to staff the pedagogical reasons for incorporating e-learning into a range of blended delivery situations
- establishing integrated support structures and systems that create real flexibility for learners/customers.

Final comment

E-business applications such as customer relationship management, enterprise resource management and e-procurement can have either direct or indirect benefits for online learning systems. Ideally, such e-business applications will be implemented in ways which assist the provision of online learning.

E-business challenges many traditional concepts about the value chain and the structure of organisations, but the rewards of making the change are significant. Above all, e-business provides opportunities to increase the range and types of customer services provided by a VET organisation. In a VET organisation which uses e-business, online learning is just one of the services provided online. Other online services include online fee payment, online enrolment and online access to student information. This increase in customer service is underpinned by improved efficiencies in the back office and in the supply chain. On the other hand, there are costs and risks associated with e-business.

The drive to implement e-business in VET organisations is coming not just from those within the organisation seeking improved efficiencies, but from the customer expecting more and better service and from business partners and suppliers wanting easier connections. These three demand drivers for e-business contrast with the uncertain level of demand for online learning discussed later in this report.

Overseas e-business models which involve online learning

This chapter provides examples from overseas of how both educational and non-educational organisations are developing e-business models that involve online learning. Extending the discussion of business models initiated in the previous chapter, this chapter focusses on the following business models:

- providing customers with free online learning opportunities, to build customer relationships
- teaching customers online, free of charge, how to use the product, so they encourage others to buy the product
- using online collaboration to expand market reach
- providing customers with access to large databases of online learning and print materials
- implementing e-business by using online learning to teach staff about new systems.

In relating each model to the Australian VET sector, this chapter, along with evidence provided in other chapters, addresses the following question: What new and emerging business models could enhance the delivery of, enrolment in and the management of online learning systems in VET in Australia?

Key points

The key points made in this chapter include:

- Some large corporations such as the multi-national bookstore chain Barnes and Noble are providing free online learning for customers, so that customers will buy other products and services. Universities such as Stanford are providing some academic content online, for no charge, believing that the content is not the main or only value that the university offers. Australian VET providers are hesitant to embrace this new business practice of providing free online content, beyond taster courses, and the hesitation is possibly wise.
- A variation of the business model of providing free online learning is to give away online instruction that helps programmers learn how to use a product, so that those programmers can assist others to buy and use the same product. The above two business models are sometimes described as 'edu-commerce'.
- Online learning is seen by some organisations, including the Canadian Virtual University, as just one example of an online customer service. The online medium is used by such organisations to cater for many other customer needs, such as information about career planning, library services and financial aid for students. A number of Australian VET providers are also modelling this business practice. The passage of time may show that online learning is not the predominant use of the online medium for Australian VET.
- The Canadian Virtual University is a model of online collaboration for co-marketing purposes. While there are a number of similar examples of such collaboration in the Australian university sector, there are few examples in the Australian VET sector of similar online collaboration.
- International publishing houses such as McGraw Hill and Thomson are powerful players within the global online learning arena, able to offer a powerful combination of online learning courses,

printed texts and printed instructor materials, all available online. In the future, Australian VET providers may need to compete with or imitate these publishers' vast stores of digital information or to form alliances with such providers.

- The use of online learning to train staff in the use of a company's e-business tools and products is a popular business model, used by organisations such as post offices and banks. There are few examples of Australian VET organisations using the same model, which is surprising, given that Australian VET organisations are enthusiastic about offering public training in e-business.

Providing free online learning, to build customer relationships

One of the business models emerging from the e-business arena is the provision of free online content or online courses, to gain benefits such as increased numbers of customers for purchasing other services and products. In the education sector, Stanford University surprised its competitors with its decision to make access to some of its course content free of charge (http://scpd.stanford.edu/scpd/about/kiosk/freeStuff.htm). Stanford University realised that other aspects of the university which students valued, besides access to course content, included its brand name, via accreditation, and contact with lecturers.

In the VET sector in Australia, a number of bodies provide free online courses. Western Australia's WestOne (www.westone.wa.gov.au/intotheinternet/) is an exponent of offering free 'taster' courses online. Its 'into the internet' range of free online tutorials help people get what they want out of the internet. Similarly, in order to provide an insight into the effectiveness of online learning, Victoria's Virtual Campus (www.tafevc.com.au/samplecourse.html) offers a number of free online courses, such as Life online, Psychology and Australian sport (Mitchell 2001d).

The following description of Barnes and Noble University highlights the potential scope of offering free online courses.

Barnes and Noble University

Barnes and Noble University (www.barnesandnobleuniversity.com/) is an extension of the large book and information retailer, Barnes and Noble. Its university is designed to help the company sell more products and to improve customer loyalty through the online promotion of its brand. The online classes at Barnes and Noble University are related to the books, music and other items that Barnes and Noble sells.

The university went online in June 2000 and attracted more than 200 000 registered users in its first year of operation. During 2001, Barnes and Noble University educated more than 500 000 customers in courses that cover a wide variety of subjects ranging from literature and language, business skills and education, to home and leisure. More than 35% of students have already enrolled in more than one course and nearly 10% have enrolled in four or more courses. These students have provided a new revenue channel for the company, as they purchase titles recommended for courses and also non-course books advertised through the university.

Barnes and Noble University achieved high levels of customer acquisition, conversion and retention, both online and offline, through customers it has driven to Barnes and Noble stores. Many of the classes are taught by authors, further creating a more meaningful, rewarding customer experience—and creating an environment conducive to buying. www.powered.com/press/releases/release_detail.htm?id=106 [accessed 20 August 2002]

This use of free online learning to build relationships is an example of a business model labelled 'edu-commerce' and promoted by a number of enterprises including United States company Eduventures (www.eduventures.com).

Implications for VET

VET providers may benefit from analysing the business model used by organisations such as Barnes and Noble or Stanford University to determine whether any elements are relevant to the Australian market. For instance, they may find that giving away access to content from some courses within a program of courses may entice more students to undertake the program than otherwise might have

enrolled. VET providers may also consider analysing the thinking behind Barnes and Noble University in relation to customer acquisition, conversion and retention, both online and offline, to see whether any of this strategy is transferable to VET organisations.

On the other hand, Australian VET providers are wise in not embracing the business model of giving away free content, until it is proven in the educational arena.

Teaching customers online for free, so they encourage others to buy the product

The Barnes and Noble case study above provided an example of a company giving away online content in one field in order to make sales in another. A variation of this business model is to give away online instruction that helps customers learn how to use a product, so that those customers can assist others to buy and use the same product. Using this second model, through the provision of free online learning, companies can market and extend their products and services in efficient and cost-effective ways. An example of this second model is provided by Metrowerks.

Metrowerks

Metrowerks (www.powered.com/successes/Metrowerks/index.htm) is a company which develops, markets and supports software used to build microprocessors used in computers, calculators and everyday consumer devices. In January 2000, the company launched CodeWarriorU.com—an educational website offering free courses in programming. The CodeWarriorU website was designed to extend the Metrowerks brand internationally and to educate both their new and existing customers. In the first seven months, over 50 000 people signed up for the company's programming courses.

Through establishing a community of online students and by creating a greater visibility for the company, Metrowerks was able to substantially increase market share. As a result of distributing Code WarriorU.com, more than 200 000 programmers in 80 countries around the world now use Metrowerks' products.

Like Metrowerks, Microsoft, Novell and Cisco offer a range of courses online, sometimes for no fees if the student is willing to study without the assistance of a tutor. The student needs to pay a small fee to be assessed online and has the option of buying self-help books and software to assist in the preparation for the exam. Alternatively, the student can enrol in face-to-face classes to learn about the software.

Implications for VET

A possible application of this business model for Australian VET is the provision of selected online training for free, in order to entice students to seek additional training and certification. For example, the Australian National Training Authority has funded the development of a range of 'Toolboxes' of online learning which are available at a low cost to providers to offer to the market. The TAFE Virtual Campus in Victoria now offers free Toolboxes to students, enabling teachers in Victoria to incorporate aspects of a Toolbox into a blended learning course, where other parts of the course are delivered face to face.

Using online collaboration to expand market reach

One of the business strategies facilitated by the online medium is the development of online collaboration services. Collaboration platforms involve business process collaboration between enterprises, such as collaborating for marketing, using specialist online tools and shared information (Mitchell 2000d). An example of online collaboration is provided by the Canadian Virtual University.

Canadian Virtual University

The worldwide web platform provides a range of possibilities for new alliances and services. For example, the Canadian Virtual University (www.cvu-uvc.ca/) is an alliance of thirteen universities from across Canada, including: Athabasca University, Université du Québec, Open Learning Agency, Brandon University, Royal Roads University, University of Manitoba, Laurentian University and the University College of Cape Breton. The virtual university offers 175 programs and 2000 courses through the internet or by distance education.

The Canadian Virtual University uses the following e-business practices:

- electronic communication with partners in the supply chain
- the use of e-procurement strategies to create efficiencies
- customer relationship management through the provision of an efficient online system for admissions, course registration, advising students, and for grade notification and recording.

The Canadian Virtual University also offers a wide range of online student services beyond the provision of online learning, as follows:

- extensive advice about procedures for the assessment of prior learning
- transfer of credit from study undertaken with other organisations
- financial aid
- assistance for students with disabilities
- services for First Nations learners
- services for students with English as a second language
- services for international students
- career planning advice
- advice about library services
- advice about academic courses.

A similar model to the Canadian Virtual University is the Global Film School (GFS) (www.globalfilmschool.com), an online university dedicated solely to the art of filmmaking. Founded by three pre-eminent educational institutions—the UCLA School of Theatre, Film and Television, The Australian Film Television and Radio School, and the United States' National Film and Television School, the Global Film School is modelling a new way whereby individuals around the world learn about making motion pictures. The school offers a wide range of courses, seminars, and events that cover the creative, production and distribution facets of film. Renowned professors from prominent universities and entertainment conglomerates share their wisdom and experience, while students from all corners of the globe act as peers and collaborators.

Another example of online collaboration between educators is provided by Cardean University (www.cardean.edu). The university offers online business courses and a Master of Business Administration degree accredited by the Accrediting Commission of the Distance Education and Training Council and is the first online university to receive degree authorisation from the Illinois Board of Higher Education. The university develops its online material via a consortium with universities such as Columbia Business School, Stanford University, Chicago Graduate Business School, Carnegie Mellon University and the London School of Economics.

Implications for VET

Online learning is seen by some organisations, including the Canadian Virtual University, as just one example of an online customer service. The online medium is used by such organisations to cater for many other customer needs, such as information about career planning, library services and financial aid for students. A number of Australian VET providers are also modelling this business practice, as discussed in the next chapter of this report.

The Canadian Virtual University provides a model for Australian VET for effective online partnering and collaboration. While there are a number of examples of such collaboration in the university sector in Australia, and Australian VET providers expressed strong interest in the business model of online collaboration platforms (Mitchell 2000d), there are few examples in the Australian

VET sector of similar online collaboration. The university examples include Universitas 21 and the Global University Alliance.

On the other hand, the difficulties of forming and sustaining alliances are significant. For alliances to succeed, the partners need to accept the difficulties of collaborating:

> Firms that are truly 'alliance ready' view alliances as a tool for actively discovering or creating the future and overcoming resource disadvantages. They are willing to accept the difficulties of interim collaboration, since collaboration helps them accomplish otherwise unfeasible objectives … Competition and collaboration are the yin and yang of alliance readiness. Though they traditionally represent opposing poles of organization culture, managers must find ways to bring them into coexistence. (Doz & Hamel 1998, p.258)

Alliances that use the new medium of marketspace involve another level of complexity. VET providers are advised to tread warily in this domain, as the risks associated with this new form of alliances are significant (Mitchell 2000c).

Providing customers with giant databases of online learning and print materials

Large, multi-national publishers like Thomson and McGraw-Hill are key, new players in the online learning arena. They bring to online learning their considerable print-based assets which can be transferred to, or customised for, the online environment. In 2001, Thomson, the publisher of *The Economist*, purchased one of the largest e-learning companies in the world, NETg. Thomson NETg now promotes the concept of blended learning: the combination of e-learning with other resources, such as printed texts and templates for classroom-based lecturers, all of which Thomson can provide.

The following portrait of McGraw-Hill underlines the opportunities for companies with large databases of learning materials to partner technology companies that can broaden the uses of those materials.

Implications for VET

The question of whether online learning companies from overseas such as McGraw-Hill Education and Thomson NETg can impact on the Australian education sector is debated by researchers. Referring to the higher education sector, Cunningham et al. (2000) reported that:

> There is as yet no evidence of an imminent large-scale influx of any new higher education providers (using online learning) into Australia. Even Australia's international market is unlikely to be affected in the near term; both new providers and not-for-profit institutions are in the early stages of seeking international markets and are aware of the many practical obstacles involved. (Cunningham et al. 2000, p.xiv)

In contrast to the Cunningham et al. (2000) findings for higher education, Mitchell (2001c) found that significant changes are occurring in the market for online products and services in the VET sector in Australia, including the rise to prominence of overseas suppliers of online content. The market is changing from one dominated by government-funded initiatives to one influenced by normal market forces, such as competition between vendors. Competition is evident in the range of different brands of online content now available in the Australian market; the range of different providers who can develop customised material; and the numbers of different providers of online learning technology. Many of these providers of online content are from overseas, such as SmartForce, NETg, Skillsoft, Element K and KnowledgeNet, as are leading providers of online learning technologies, such as WebCT and Blackboard.

McGraw-Hill Education

McGraw-Hill Education (http://mheducation.com/about.html [accessed 20 August 2002]) is a leading provider of comprehensive e-learning solutions offering e-learning products and services that leverage the knowledge and expertise that exists within the McGraw-Hill Companies. McGraw-Hill Education is a division of the McGraw-Hill Companies, a global information services provider serving the financial services, education and business information markets through leading brands such as Standard & Poor's, Business Week and McGraw-Hill Education. Founded in 1888, the corporation has more than 350 offices in 33 countries. Sales in 2001 were more than $4.6 billion.

McGraw Hill Education publishes in all media, from print to CD-ROM, to the web, and is dedicated to integrating technology into the lifelong learning environment. Some McGraw-Hill Education firsts include:

- interactive software program integrated with a textbook, *McGraw-Hill mathematics*, 1982
- digital custom textbook, *Primis*, 1989
- online browser-based multimedia textbook, *Norton introduction to computers*, 1998
- professional textbook/reference work transformed into an updated daily database, *Harrison's online*, 1998
- online multimedia training library with bandwidth-sensitive version control, *Xebec online*, 1999.

Recognising that competitive market pressure is quickly transforming customer care into a strategic differentiator for many companies, McGraw-Hill partnered with Avaya Inc., a global leader in corporate networking solutions and services. Together the companies want to develop qualified customer relationship management-focussed training courseware for staff working at the McGraw-Hill customer centres, the primary vehicle for the organisation's interaction with customers.

Through the customer relationship management training, the companies want to create improved sales techniques, lower contact centre staff turnover and improved customer loyalty. There are over 70 000 contact centres worldwide and many of them experience high levels of turnover, up to 100% per year in some cases, making ongoing training resources a high priority. Identifying this critical need, Avaya and McGraw-Hill Education are working together to make their multi-branded, multimedia-based training courseware for the global contact centre market into an industry standard and eventually create the first-ever certified training program accredited by the North American-based Call Centre Advisory Council.

Working together, Avaya and McGraw-Hill Education expect to address the United States business skill training market which is estimated by Gartner (international research and consulting firm) to rise from $314 million in 2001 to $467 million in 2003. The courses will be available over the web, intranet or CD-ROM.

Implementing e-business using online learning to teach staff about new systems

Many overseas companies are implementing e-business structures such as integrated technologies in the back office and are using online learning to assist in teaching staff about the new systems. Set out below are two examples of this business model, from a post office and a bank.

Consignia aims to train 200 000 staff in e-business processes using e-learning, while Deutsche Bank, described below, aims to instruct its 90 000 staff.

Implications for VET

When VET organisations introduce aspects of e-business, one option is to use online learning to assist staff to learn new skills to use the e-business tools such as customer relationship management software. A secondary benefit is that staff will become more exposed to and skilled in using the online environment for teaching and learner support.

Final comment

While there are lessons for VET in each of the business models used overseas, a number of Australian VET organisations are already using similar models to those used overseas. Vocational education and training organisations need to be wary of directly imitating models developed for different contexts, such as multinational bookstores, banks or post offices. On the other hand, if

VET is to remain credible as a source of teaching about e-business, it could sensibly monitor overseas business models that connect e-business and online learning.

Consignia, postal service in the United Kingdom

Consignia (www.futuremedia.co.uk) is a United Kingdom postal service with three brands, Royal Mail, ParcelForce Worldwide and the Post Office. In addition to these brands, the company is positioning itself as a provider of e-banking, home shopping, banking and more. The organisation is transforming back office processes and systems to become an e-business.

According to Consignia, e-learning is part of its e-business strategy for moving forward:

> De-regulation and the opening up of its services to competition means that Consignia intends to use e-learning to help train its 200 000 staff in new products, services and systems. Previously, the logistics of time, cost, geography and sheer employee numbers limited the level and speed of training delivery.

E-learning will help Consignia become an e-business in the following ways:

> Early e-learning initiatives are aimed at a wide variety of staff—from business to business marketing to operational managers in mail delivery. Currently 44 000 people use a computer to do everyday tasks, so [they] can learn at their PC or at one of its learning resource centres.
>
> It will dramatically reduce the time it takes to deliver major change programs.
>
> There will be much better value for money on training budgets.
>
> Training materials will be kept up to date and refresher training will be delivered more easily.
>
> It will blend with traditional training to achieve objectives in the most effective way.

Consignia intends to use e-learning with all of its 44 000 staff (www.train-net.co.uk/news/news_story.asp?NewsID=336 [accessed 20 August 2002]).

Deutsche Bank

The first implementation phase of the Deutsche Bank University Portal at Deutsche Bank Group will provide online education for approximately 90 000 employees throughout the enterprise and be the access point to all learning and training within Deutsche Bank. (http://biz.yahoo.com/bw/011008/82011_1.html)

Implementation of the portal is designed to increase the quality and speed of employee performance while reducing training costs. The second phase of the implementation, which is already underway, will include the addition of collaboration tools to the portal. In a later phase, Deutsche Bank plans to open its e-learning platform to third-party clients either by sharing existing learning and training products or as the basis for their independent learning portals.

The Deutsche Bank University Portal will allow employees to learn at their desks or via a mobile device instead of having to attend instructor-led courses—which was the only viable alternative before now. Deutsche Bank's e-learning platform also includes a news management system that provides a broad range of current news related to learning in general as well as to new training products.

Australian examples of good practice

This chapter provides Australian examples of good practice in applying e-business principles or processes to the delivery and support of online learning, supplementing Australian examples set out in other chapters of this report.

Key points

The key points in this chapter include:

- A range of Australian VET providers and corporations are inventive in the use of e-business practices that impact positively on the provision of customer services such as online learning.
- There is notable experimentation by VET organisations in customer relationship management and online enrolments, and these new business practices often have flow-on benefits for online learning systems.
- Some VET organisations are using innovative partnerships and staff training schemes to foster the implementation of both e-business and online learning.

Good practice in leveraging online learning off an e-business platform

The dissemination of online learning can be facilitated by taking advantage of the technology implemented for e-business, as shown by the case study from Bathurst in New South Wales.

The Central West Community College example highlights the value of embedding online learning within a whole-of-organisation approach to e-business, technology installations and customer service.

Good practice in linking customer relationship management with other electronic services

Customer relationship management is an integrated approach to acquiring, servicing, retaining and growing satisfied and profitable customers, based on understanding customer requirements and the service features that they value. The following case study shows how the Open Learning Institute of TAFE Queensland (OLI) has applied a customer relationship management system in its determination to align its business processes more and more closely with the customer:

> OLI is seeking to optimise the value from each and every customer contact, with the CRM providing the tools, processes and systems that support a consistently high level of joint value creation. (OLI 2001)

The Open Learning Institute in Queensland provides a model for the planned introduction of one of the core practices of e-business, customer relationship management. The institute also provides

an example of how online learning can benefit from a well-planned introduction of e-business technology and processes.

Central West Community College Ltd, NSW

Central West Community College Ltd has its main office in Bathurst, New South Wales, with ten full-time sites and another 11 outreach sites staffed on a part-time basis. The college has 130 permanent and 570 part-time staff and enrols 14 000 students annually. Besides offering a range of VET-accredited and adult and community education programs, the college also provides a range of employment services and tenancy advice.

To deliver this diverse set of services efficiently and reliably across this multi-campus organisation, the college embarked several years ago on a program to upgrade its business systems. The campuses are linked by a 128kbps ISDN (integrated services digital network) wide area network with a 512k ADSL (asymmetric digital subscriber line) link to the internet, enabling the easy transfer of large data files. A powerful database underpins the training information management system, which captures and stores information about the VET and ACE students and provides online enrolment. The college's employment services also use sophisticated software to manage their client interaction, compliance requirements and job matching functions. The college's e-business infrastructure includes the use of an eEnterprise software suite, providing tools for a range of accounting functions such as e-procurement. The college is also deploying browser-based systems for staff performance management and resource tracking.

The college's use of e-business is driven by multiple goals: to improve business efficiencies internally; to improve business-to-business transactions, both with suppliers and with the government; and to improve services for customers. According to the Executive Director, Ben Bardon, the college's staff have a 'can do' attitude to the use of new technology: they expect information technology to be available and to work reliably, as if they were working for a large multinational company.

The college is not interested in developing online learning content for small niche markets but, rather, is more focussed on providing online learning in market areas of high demand, for instance where a large number of people require similar training. For example, the college has developed 20 web-based online learning modules available for use by unemployed people, on high-demand topics such as job-seeking and employability skills. Unemployed people who come into the college's offices can undertake the online modules using the college's equipment.

Ben Bardon believes that his organisation plays a key role in bringing students together for the first time. But in the future, students who repeatedly enrol for programs will be able to use the college's web-based technology to organise themselves into classes, cutting administration and publishing costs and facilitating lower fees.

Open Learning Institute of TAFE, QLD

The Open Learning Institute in Brisbane provides a range of services to 26 000 TAFE students around Queensland and a growing number in China. Customer services include providing external students with print materials, CD-ROMs and online materials; handling enquiries; processing enrolments; and providing assessment. Institute staff are also involved in product development, printing, production and distribution of learning materials and planning and managing marketing.

Beginning in the mid-1990s, the Open Learning Institute developed technology and business processes to enable it to provide these customer services and to perform these internal processes electronically, wherever possible. For instance, the Open Learning Institute developed VETTWeb, one of the first online learning management systems used in Australian VET. Built on an Oracle database, this web-enabled system provides the capability for the institute and other training providers to deliver online learning, assessment, provide online information about courses and enrolment facilities, monitor and manage enterprises' training activities and provide comprehensive reports.

The Institute Director believes that a defining point in the Open Learning Institute's evolution was the development of a program in 1998 called OLI CARES—'Customers Are Really Everything Strategy'. This led to the review of customer services and business processes and a restructure of the institute.

This e-business journey of improvement in the late 1990s led staff to identify the need in 1999 to develop a comprehensive customer relationship management model and system. This system suits the institute's goal to provide outstanding customer services to its large, and widely distributed student group and also enables the institute to maintain an ongoing relationship with the student. The Open Learning Institute's customer relationship management solution is called OSCAR, derived from OLI's Sales, Customers and Relationships system.

The Director of Educational Services explained the importance of OSCAR to the institute:

> We realised that the cost is too high to develop a non-digital infrastructure to meet student demands and business processes. The costs of our computing legacy systems for student administration and records were increasing. We needed a new infrastructure that gave us the capacity to cope with change. We are living in an environment of constant change and we need to develop a capacity to respond.

With a budget of less than $1 m, which is modest when compared with customer relationship management installations in the corporate sector, the institute developed a system in 2000–2001 that meets the specific

needs of its business. These needs include being able to provide a fast, efficient and reliable response to the student, from the moment the first enquiry is made, to linking their enrolment record, tracking the distribution of their learning materials and maintaining close contact with the student by both educational and delivery support staff throughout their course and after they finish.

As part of the institute's strategic plan, the utilisation of OSCAR is contributing to achieving the institute's goals to:

- achieve long-term sustainable growth by generating revenue growth that funds new business opportunities
- inspire the success of our diverse range of customers through long term responsive partnering relationships
- be recognised as the leading, innovative, quality-learning organisation in the VET sector
- provide high-quality, responsive products and services that meet market needs. (OLI 2001)

A key to the success of the OSCAR system was the planning and implementation schedule, summarised below:

- September 1999–July 2000: envisioned CRM model developed and endorsed through extensive consultation; CRM Procurement Project undertaken, including defining OLI business needs, documenting specifications, managing the tender issue and evaluation phases to contract negotiations; resulting in selection of an existing CRM package to be substantially customised
- August–September 2000: contract signed with CRM integration company. CRM implementation project team formed to focus on processes, information management, technology readiness and training; 100 software licences acquired
- November 2000: staff training commenced; staff recruited and facilities installed for the new customer care centre, OSCAR named through staff competition
- December 2000: Customer care centre launched with the Enquiries module of OSCAR; enquiry and student data converted from the previous database, FlexiSAS
- January–February 2001: ongoing staff training (continued through 2001); marketing campaign resulted in a record number of student enquiries; enrolments module installed and acceptance testing processes undertaken
- April 2001: CRM project team re-focus on the educational interaction functionality; additional 65 OSCAR licences approved; development of training program for teachers and tutors
- May 2001: phone enrolment project commences with the customer care centre; improved tutorial assistance screen developed and tested to meet Australian Vocational Education and Training Management Information Statistical Standard audit requirements; Learning solutions distribution module launched
- June 2001: Extended Course Information Database sub-project approved; final conversion of data from FlexiSAS to prepare for its decommission; teachers' and tutors' specialised training conducted; facility to download data from CAP (the Statewide student information system) to OSCAR approved for development
- July 2001: OSCAR's educational services functionality for teaching support launched; and FlexiSAS switched off
- August 2001: finalisation of all acceptance testing; account and opportunity management workshops held for staff involved in business development activities; launch of awards and assessment functions
- September 2001: OSCAR officially launched. (OLI 2001)

Modelling best practice in e-business, the Open Learning Institute is linking customer relationship management to other electronic services. Enquiries are channelled through its call centre, the Customer Care Centre, into the CRM system. Then the CRM data about the prospective student will be linked to the digital document management system, which digitally stores course brochures, enrolment forms and course materials. The next steps in the chain are product development of learning resources, then the production and distribution of these materials, and the delivery process, which can include an online self-test of the student's learning style. Ultimately the delivery process will provide the student with access to digitally stored learning objects.

Immediate successes of OSCAR include: the saving in marketing costs resulting from more efficient capture of a greatly increased number of enquiries to the Customer Care Centre in 2002; improved conversion to enrolments through faster response for enrolment information; and the ability for each customer's requests to be serviced in one contact as a result of 165 staff having fingertip access to all the student's records.

Further steps for the institute in developing their CRM system are: to add a tracking system and a portfolio management system; to develop a digital object tagging system which involves applying meta-tags to disaggregated objects, to enable improved decision-making; and to develop CLEM, Compiled Learning Experience Model, to use digital objects to provide a framework that can be developed quickly. To assist these next stages, OLI is partnering other educational bodies.

Good practice in using online learning to train staff so they can offer better online services

Examples of the convergence of online learning and e-business are provided by a large government department, the Australian Taxation Office, and a large bank, ANZ, in the following discussion.

Both organisations fit the profile of companies likely to use online learning, as defined by Mitchell (2001c):

- employers who value training to meet business needs
- organisations that currently use or plan to use online learning as part of a package of e-learning strategies
- organisations that provide staff with access to online learning at work
- organisations that are sometimes undergoing significant organisational change
- organisations that may have branches spread over a large geographical area
- organisations that sometimes have a high staff turnover
- organisations that often require regulatory/compliance training
- organisations that often require induction training

The Australian Taxation Office uses online learning for a number of different uses: to assist in the delivery of a masters program in taxation in conjunction with the University of New South Wales; and to train its information technology staff in the use of software and hardware.

The ANZ bank recently implemented an extensive online learning system around its Australian branches, resulting in 165 000 enrolments and 125 000 course completions in the last 12 months. Further information about ANZ's online services is provided later in this report.

Both the Australian Taxation Office and ANZ embarked upon training for their staff utilising online learning to enable their organisations to provide improved services to their customers. The tax office is meeting a demand from accountants and tax payers for the online lodgement of annual tax returns and the ANZ is meeting the increasing demand from customers for electronic banking. Details relating to the tax office's current online learning activities are set out below.

Australian Taxation Office

The Australian Taxation Office is customising off-the-shelf e-learning products provided by an international e-learning company to provide its entire national workforce of around 22 000 staff with access to online training in the use of the Microsoft suite of programs such as Word, Excel and PowerPoint. Approximately 50% of the staff are accessing the online learning products regularly.

The tax office is also using the external e-learning products to assist its workforce to make a substantial leap from using Windows 95 to using Windows XP. In contrast to when extensive classroom training was used to implement Windows 95 in the Australian Taxation Office, the introduction of XP is being underpinned by online learning at the desktop of the individual staff member.

Currently the staff can access the external e-learning content via the tax office's intranet. The tax office is examining the advantages and disadvantages of staff members accessing the external e-learning content online from the providers' server, via the tax office's intranet. This new approach would reduce the administration load of maintaining courses online. It would also be more efficient and quicker when the external provider made updates to courses on its website.

Complementing the e-learning content provided by an external company, the Australian Taxation Office has constructed a selection of its own web-based training tools. The organisation also uses a 'blended learning' approach, combining online learning with face-to-face support.

Good practice in partnering external providers

A number of organisations are mentioned in this report in relation to partnering external providers to stimulate both e-business and online learning. Manly Warringah Community College in New South Wales is particularly active in developing partnerships to meet the diverse needs of its student markets. These partnerships sometimes involve the combined use of e-business, through the use websites, and online learning.

Manly Warringah Community College Inc, NSW

Manly Warringah Community College Inc, caters for VET and ACE on the North Shore of Sydney. Increasing customer demand is driving the college to develop innovative partnerships with a range of external parties in order to provide a substantial program of activities for its local communities. For instance, it partners with Microsoft and Intouch Consultancy to provide Microsoft training and Netprep Solutions to offer other professional information technology qualifications. The college also partners with the Australian Institute of Music and Lloyds College of Hospitality and Tourism.

A number of the business partnerships involve online learning. A particularly innovative partnership developed by the college enables Sydney residents to study a Bachelor of Law or a Master of Law from London. In conjunction with the Australian Centre for Graduate Studies, the college offers law subjects from the University of London, which include online lectures, tuition and access to libraries and study material. Similarly, the college partners the Securities Institute of Australia, which offers finance industry courses that are available using distance education printed materials, workshops, lectures or using online learning.

Online learning extends beyond the provision of courses. The college developed a joint venture with Webster Publishing to offer its customers access to WebsterWorld, one of the most comprehensive reference sites on the web. It includes over 80 000 articles, including substantial Australian content as well as content from Cambridge University Press.

Manly Warringah Community College provides a role model for other VET organisations of how to develop a rich program of courses through actively partnering specialist providers of online learning.

Good practice in incrementally developing online learning and e-business

Swinburne University of Technology is a large metropolitan provider of vocational education and training in Melbourne. The university is also heavily involved in teaching about e-business, using the online medium. For instance, it developed:

- ✧ online resources and a training program 'e.commerce for small business'
- ✧ a nested Diploma of Business, Advanced Diploma of Business and B Bus (eCommerce)
- ✧ online resources for 59 new e.business competencies.

Swinburne University is currently developing initiatives in both e-learning and e-business. A shared characteristic of the initiatives is that change is being introduced incrementally, to manage risks and to maximise the chances of success. The initiatives in e-business and online learning overlap as they share the similar goal of improving customer service.

In its TAFE Division, the university is implementing an e-learning change management plan, focussing on e-learning as an enhancement, and on blended learning strategies. The project team is examining the following matters:

- ✧ educational e-learning practices
- ✧ the e-learning teacher
- ✧ professional development
- ✧ resources and content development
- ✧ support structures
- ✧ organisational commitment and communication
- ✧ technical infrastructure
- ✧ continuous improvement and research
- ✧ e-business
- ✧ sustainability.

The project team considers that the areas of e-business and sustainability are the least explored domains. With regard to e-business, online course information and online course applications are provided, electronic administrative systems are available but not yet integrated, development continues of a student portal—the 'one stop shop' approach—and strategic relationships are being formed so the university can value-add for its students. An example of partnering is provided by the university's links with Monster.com to provide employment opportunities to graduates. Another action taken by the university is the development of an e-zine for students and staff. Swinburne's human resources systems are online, so that staff records are on the web and staff can check leave entitlements at any time and apply for leave online.

The box below contains a submission to the author by the Deputy Director, IT Services, Swinburne University, which provides an insight into not only what online activities currently are being undertaken, but also summarises the business drivers encouraging the university to continue to change. It was noted above that Swinburne's approach to e-business and online learning is incremental, which does not prevent it from being creative and purposeful, as confirmed below.

Swinburne University of Technology

We are certainly seeing the need for an holistic and integrated approach to service and systems delivery, where our students can study at their own pace, place and time, and where they can manage multiple relationships with the organisation through one gateway.

The evolving development of student portals is one way in which organisations can deliver integrated access to information and services. Swinburne is conducting a pilot student portal project with these goals in mind.

We are seeing a move away from ERP [enterprise resource planning] systems which are complex, expensive to implement, support and maintain and a trend towards systems integration.

Here the business drivers are:

- improved accuracy and timeliness of information flows
- improved management and effectiveness of different relationships
- building a lifelong relationship with students
- web-based delivery of student services, education and administrative activities
- improved access to information through multiple channels
- improved integration of activities between different business units
- improved ability to access and relate information from different sources
- improvement of inefficient business processes.

There is no doubt the major challenge in all this is business process improvement and business process re-engineering. It's about a new way of doing business and it requires a mind shift. It also requires a significant investment of time and effort which is often underestimated. I agree that information technology is the enabler, not the driver. Managing security and information privacy issues will be a further challenge.

In delivering this holistic service, I believe we will see integration of Help Desk services as well, where teaching and learning and IT Help Desks will converge. Over the last few years we have begun to move to the 'customer self service' model with devolved purchasing, human resources web kiosk, student self-allocation to classes, employment and job searching and introduction of library e-catalogue, online library reserve and so on. Online enrolments, re-enrolments, payments, etc. will be in place by year's end.

We will also see greater use of the 'push' technologies to deliver information and services to our customers. We are, for example, investigating a pilot distribution of results to mobile phones this year and to advise of class changes and cancellations.

You mention the pitfalls of e-business, etc. It would be interesting to know what studies have been done with the various student groups to assess their interest in, and level of take-up in using online services, particularly the mature-age students.

There will always be the issue of changing technology and vendors merging or going out of existence. In selecting/developing integrated solutions, the drivers need to reflect flexibility, interoperability and scalability. Key in the process, as you mention, is the involvement of teams across all areas, working together to conceptualise, design and implement the new approach.

(Submission from Heather Uffindall, Deputy Director, IT Services)

This submission provides a window into one educational organisation's incremental approach to implementing e-business and online learning. In taking a staged approach, where innovations are evaluated, the university is increasing the likelihood of the innovations being sustained.

Good practice in online enrolment

Online enrolment is becoming increasingly common in VET organisations around Australia. For example, a range of adult and community education providers in New South Wales are using different types of online enrolment systems to respond to customer demand for improved access to services. Sydney Community College finds its customers are driving it to use the internet more and more for functions such as online enrolment.

Sydney Community College, NSW

Sydney Community College enables customers to search online, gather real-time information about course content and availability and then enrol using a credit card in a secure bank-to-bank transaction. Around 20% of the college's students now enrol online, with significant numbers using the online system for pre-course research.

The Sydney Community College places a much greater emphasis on e-business than on online learning. Sydney Community College finds that many more people are using the college's website to find out course information and are using email to make enquiries about courses. While the college is convinced that customers want online services such as online enrolment and online course information, the college is not convinced of the existence of a large enough market in online learning to make an investment worthwhile. The college is mindful of the risks of investing in online learning, including the need for specialist curriculum and technical staff and access to technical infrastructure.

The Principal of Sydney Community College comments:

> E-business means being more and more available to our customers on a 24 hour, 7 day a week basis. The depth and quality of the information required by customers is almost endless in an e-business environment. Our customers are driving us more and more to use the net.

Where customer demand is driving the move to online enrolment, the chances are raised of its becoming an ongoing student service. Some organisations such as Sydney Community College are waiting for student demand for online learning to reach similar levels before investing more in online learning.

Challenger TAFE in Western Australia is currently implementing an online enrolment system, with the support of WestOne. Challenger is also responding to increasing demand for online learning.

Good practice in telemarketing of online learning

Mitchell (2001d) notes that offering online products and services to undifferentiated mass markets of students is unlikely to succeed in Australian VET: 'For instance, building online courses and then placing them on websites, hoping students will enrol, has resulted in low levels of success'.

One marketing technique rarely used in VET is the e-business process of telemarketing; that is, approaching likely clients with direct calls, usually by telephone. A commercial training provider, SelfCert, uses telemarketing effectively to target information technology workers who might be interested in undertaking more information technology courses online. The National Office for Information Economy offers the following description of SelfCert:

> A Sydney-based company, SelfCert, provides an example of e-business and online learning converging. SelfCert is unlike the traditional educational provider: it has no classrooms and no shop front. Operating from an office building in suburban Sydney, it uses telemarketing to sell online learning courses to individuals around Australia.

> Through its major supplier, SelfCert offers students more than just online course content: it offers students access to 'chat groups, technical papers, seminars, online classes and performance laboratory exercises via the Internet'. (NOIE 2000, pp.70–1)

Not-for-profit VET organisations might benefit from monitoring the marketing techniques of commercial providers such as SelfCert. On the other hand, Swinburne University is considering the innovative use of text messages to students' mobile phones for two initial purposes: to distribute results to mobile phones and to advise students about class changes and cancellations.

Challenger TAFE, WA

Challenger TAFE has reached stage two of an ongoing and iterative implementation process for online enrolment. The current stage enables students to gain and request information on courses available, make a course selection, and complete an enrolment and payment on line. The online enrolment system also provides academic managers with tools to manage the enrolment process.

The college managing director believes that online enrolment is especially beneficial for Challenger students who live some distance from a campus or do not have time in their busy schedules to enrol face to face. Some of Challenger's students are located in remote areas, interstate and overseas. For the managing director, online enrolment is another example of providing customers with a choice about how they wish to access Challenger TAFE's services. The online enrolment system is seen as yet another customer service provided to Challenger's students.

For 2001–2006 the college has adopted the strategic priority: 'To provide technology advances and innovative flexible approaches to training and skills recognition, using well-equipped contemporary learning facilities'. An e-training initiative was implemented to undertake a change management process within the college to achieve this objective.

Currently online learning resources and support services are being used in an increasing number of courses at the college. Students located off campus undertake online units, supported by an online facilitator. Where online students are required to demonstrate practical skills, arrangements have been made for this to occur on campus or under supervision in the workplace. For semester 1, 2002, 65 units from training package courses and four community education units, were offered online.

Final comment

E-business is concerned with conducting business electronically. In progressive VET organisations, e-business is not just about providing online learning but about providing students with a range of customer services. In those VET organisations which use electronic technology, e-business is also about reforming the back office, to take advantage of electronic technology, and about improving relationships with suppliers and partners in the supply chain. Some innovative VET organisations are simultaneously implementing e-business in many aspects of their business and the major beneficiary is the student. Another benefit of this approach to e-business is the promotion of online learning and other delivery modes to provide the student with increased choice.

Benefits, barriers and risks

This chapter discusses the benefits, barriers, risks and other factors impacting on the application of e-business principles and processes to online learning.

Key points

The key points in this chapter are:

- The benefits of applying e-business principles and processes to online learning are different for customers and for the provider organisation. Benefits for customers include user choice and access to personalised services delivered electronically. Benefits for organisations include increased market reach and enhanced relationships with customers.
- Barriers to achieving the customer services and improved business efficiencies made possible by incorporating online learning systems within an e-business framework include costs, user resistance, technology availability, limited staff skills and organisational inexperience.
- Significant risks associated with e-business, such as vendor instability and premature technology obsolescence, privacy invasions and legal issues, need to be covered within a risk management program for embedding online learning within an e-business framework.

Potential impacts of e-business

In order to discuss the benefits, barriers, risks and other factors affecting the application of e-business to online learning, clarity is needed about the potential impacts of e-business. A compilation of the impacts of e-business is provided by Turban et al. (2000), as follows:

- New jobs are being created by e-business and the value is enhanced of employees who can assist their organisations to keep abreast of new technologies and business opportunities.
- New products can be developed or existing products customised, using e-business technology.
- New business models such as those involving different types of intermediaries are made possible by e-business.
- Increased speed and opportunities made possible by e-business also increase the competition and the number of risks to business.
- New information about customers can be acquired using e-business technologies and practices.

(Turban et al. 2000, pp.25–30)

Organisational processes affected by e-business include, but are not limited to, manufacturing, financial systems, human resource management, marketing and product development. For example:

- E-business is changing manufacturing systems, such as automobile or computer production, from mass production to demand-driven, and often customised, just-in-time manufacturing.
- While electronic cash brings security issues, it also increases speed of transactions and reduces costs.

- ✧ E-business practices in the human resource management domain are changing the way people are recruited, evaluated, promoted and retained.
- ✧ Direct marketing is improved by e-business through enhanced product promotion, including information-rich and interactive contact with customers; through new sales channels; direct savings to the senders; reduced administrative time; improved customer service by the provision of information online; and through quicker establishment of brand or corporate image.
- ✧ Other marketing-related impacts of e-business include the facility for the customer to customise a required product online, such as configuring a computer or a car; and the ability to market as easily to one person as to mass market. (Turban et al. 2000, pp.25–30)

Turban et al. (2000) conclude that e-business has the potential to change everything in a business, from marketing theories and practices, to product innovation and supply chain management (p.33).

Many of the aspects of e-business outlined above impact either directly or indirectly on online learning systems, as demonstrated in the discussion below.

Potential benefits of convergence

The benefits of applying e-business principles and processes to online learning are different for customers and for the provider organisation. For instance, from a customer's point of view, contemporary e-business may be symbolised by ATMs, the world wide web and online banking, meaning that e-business is about user choice and instantaneous, just-for-me, personalised service. Increasingly in the information age, customers may want learning materials to be available in digital format to enable electronic access. Customers may want more self-service, by being able to 'personalise' the digital information and customers may want service right now and at anytime over a 24-hour period.

For an organisation, the benefits of applying e-business principles and processes to online learning systems include achieving an increased market reach, developing enhanced relationships with customers and finding new ways to access the intellectual assets of the organisation.

Table 4 summarises a range of benefits of the application of e-business principles and processes to online learning, firstly for customers and secondly for the organisation and its stakeholders.

Table 4 also shows that, by being able to access not just online learning but an array of online services, students can benefit from a comprehensive e-business approach to customer service. E-business positions online learning as one of many online customer services and assists VET organisations to be more customer-focussed.

Barriers

There are considerable barriers to achieving the customer services and improved business processes set out in table 4, including costs, user resistance, technology availability, limited staff skills and inexperience. For instance, in relation to marketing online learning using approaches facilitated by e-business, Mitchell (2001c) found that to gain access to different online markets requires much more than simply constructing a website and placing learning materials on it, hoping students will enrol:

> Winning access to different VET online learning market segments requires a combination of resources, market research, marketing planning and management, technology, organisational capability, staff expertise, student support systems, reputation and perseverance.
>
> (Mitchell 2001c)

Table 4: Summary of benefits of the application of e-business principles and processes to online learning

Beneficiary	Benefit	Description
Students	24 x 7 x 365 service availability	Students potentially can access online learning and many other electronic services 24 hours a day, seven days a week, 365 days a year, from home or work or when travelling.
	Fast response to enquiries	Students can receive, electronically, relevant and detailed responses to requests in seconds, rather than in days or weeks via the telephone or post.
	Customer–customer interaction	Students can interact with other customers in virtual communities to exchange ideas as well as to compare experiences.
	Customers can compare services	Potential students can compare prices, response times and value-added services from educational organisations offering e-business services, providing students with a choice of both providers and products.
	New suite of electronic services	Within an e-business framework, students and all potential customers benefit from online learning being positioned as just one of a range of online services made available electronically. Other electronic services include online enrolment, payment, library access and course information, timetables, results, careers resources and employment information, as well as counselling and support services.
	Personalisation of services	E-business facilitates the personalisation of products and services, including the provision of individual web pages for each student.
Organisation	Improved levels of student services	The introduction of back office e-business applications such as online finance systems and electronic student information systems can result in improved services to students, e.g. for online payment and students accessing their records online, enabling the organisation to better meet its customer service objectives.
	New student markets	E-marketing facilitates the pursuit of and access to new student markets, which can be offered online learning among a suite of digital services.
	New brands	E-marketing enables educational organisations to develop new brands, to cater for target markets of online learners.
	New profit sources	E-business gives educational organisations new ways to provide services and to make a profit.
	New harnessing of intellectual assets	E-business facilitates the knowledge management of digital data and gives providers the ability to harness and deliver to the student more of the digitised, intellectual assets of the organisation, not just to inform online learning but to enrich all electronic services.
	New relationships with customers	The development of new relationships with customers, based on more frequent contact and better understanding of students' needs can be facilitated by e-business software systems such as customer relationship management systems.
	Relationships for life	Through ongoing electronic communication, e-business facilitates the development by the educational organisation of a relationship for life with the student, not just during the students' initial enrolment.
	Repeat business	Electronic communication also facilitates repeat business, a key to profitable business.
	New customer-centric models	E-business encourages a more customer-centric, demand-driven approach to service delivery.
	Customisation of services	E-business allows for customisation of digital data, to differentiate products and for the delivery to different target markets.
	New business alliances	E-business facilitates the development of new relationships and alliances between providers, using shared technological platforms.
	Small business growth	E-business enables small organisations that are nimble to compete in the marketplace.
	Positive cost benefits	The introduction of labour-saving practices can lead to the achievement of positive cost benefits, e.g. not having to mail out payslips, not having to publish a handbook.

Of the VET providers of online learning surveyed for the national market study (Mitchell 2001c), 84% consider that both costs and time restraints are restricting their access to the market. Other

factors limiting their access are staff inexperience (76%); organisational inexperience (42%); overseas competitors (39%); student support systems (33%); and lack of a brand name (26%). Other key statistics are:

- 41.67% of providers surveyed believe that their organisation's access to the online market is restricted by the limited applications of online learning in a competency-based training system.
- 50% believe that students' access to the online learning market is restricted by the students' lack of necessary technology.
- 65.2% of VET providers surveyed consider their access to the market for individuals is limited by some students' learning styles not suiting online learning. (Mitchell 2001c)

Mitchell (2001c) concludes that these survey results, particularly the providers' lack of time, funds and expertise, indicate that many providers might be wise to concentrate on providing just some, not all, online services and products and not attempt to be an online one-stop shop. Instead, providers can choose only to offer services for which a market has been identified.

Other substantial barriers to the application of e-business principles and processes to online learning found by Mitchell (2001c; 2002) and Mitchell et al. (2001) include the following:

- Some educators responsible for online learning resist integrating the technological platforms for online learning with technological systems developed in the back office, continuing the divisions which began in the 1990s.
- There are real, considerable and ongoing concerns about privacy and security of digital data in e-business systems.
- Technology standards are not available for all aspects of e-business.
- Lack of bandwidth or lack of reliable telecommunication links gravely restrict the availability of online learning.
- Costs are an impediment to change, as many e-business software systems such as customer relationship management are very expensive.
- Justification of costs is not always available for new applications of e-business.
- Organisations wishing to implement and sustain e-business may not have the skills within the organisation to sustain the new processes and also may lack confidence in outsourcing.
- Collaboration of many parties in the supply chain is required if business-to-business e-business is to operate effectively.
- Customers' resistance to change, lack of interest, or lack of skills or inability to pay often stalls business-to-customer initiatives.

A number of these barriers are not easily overcome without the injection of substantial funds or the development of new skills in educational organisations. In addition, some of these barriers are outside the control of educational organisations. VET managers are faced with the challenge of managing their organisations during a period of time when the preconditions are not in place for a thorough implementation of e-business.

Risks

Mitchell (2002) notes that the following features of contemporary e-business create risks for the education sector:

- **E-business is constantly changing.** Not only are e-business technologies changing, the business applications of the technology are changing. E-business issues are likely to increase in number and extent for educational administrators, from now on.

- **E-business generates debate.** For instance, the debate continues about whether the distinction between 'old' and 'new economy' is valid or worthwhile. E-business is not a value-free domain: it requires educational administrators to make decisions about priorities, customer services, markets, business processes and resource allocations.
- **E-business attracts vendors' hype.** Some vendors suggest that e-business is very easy to plan and implement, in a short period of time, merely by purchasing their suite of technologies. Educational administrators need to distinguish between the hype and the justifiable claims of the technologists.
- **E-business produces winners and losers.** Some industries, individuals and regions are benefiting more than others from doing business electronically. Educational administrators need to understand the impact of e-business and determine which negative impacts need to be resisted or can be resisted.
- **E-business contains potential pitfalls.** The recent collapse of many dotcom companies alerted people to the risks of speculative undertakings, not based on sound business plans. Educational administrators need to become conversant with the different components of the business case for e-business, including external opportunities and threats, internal strengths and weaknesses, market demand, risks and return on investment.
- **E-business impediments include concerns over privacy and security.** These issues are very complex, particularly when information about students and staff is in digital format and is easily transferred. (Mitchell 2002, p.91)

Other risks in applying e-business principles and processes to online learning include the following:

- Educational organisations may come to regret an earlier decision to purchase proprietary software or hardware, especially if the vendor withdraws ongoing support within the geographical area. For instance, a prominent provider of learning management systems recently withdrew support from Australia, creating maintenance issues for Australian clients.
- Vendor instability and the obsolescence of technology are ongoing risks in the fast-changing and competitive market of online learning. The proposed merger in 2002 of two large, multinational e-learning companies prominent in Australia is an indication of the flux within the industry.
- Privacy invasion and lack of security of records continue to be risks for all electronically enabled systems.
- Legal issues surrounding the online domain are significant, particularly in the areas of copyright of online material.

The extent of risks associated with e-business applications in educational organisations highlights the wisdom of educational organisations developing thorough risk management strategies for any such initiative. More extensive risk management strategies for e-business may have reduced the number of problems experienced by one Australian university in 2002 when it introduced a new academic administration system. According to *Campus Review's* Geoff Maslen, the new administration system 'caused havoc with student enrolments in 2002 and the university's revenue is down by $30 m because of delays in sending out invoices' (24–30 April 2002, p.5). The university's vice chancellor explained that high staff workload was the reason why the new system had been excluded from an ISO audit of the university's quality review and accreditation processes.

Other factors

Other factors impacting on the application of e-business principles and processes to online learning include management and investment issues. The management challenges are profound, not just because of the complexity of the technologies available, but also because of the additional work

required with partners, suppliers and customers. These management challenges are discussed in the next chapter.

Investment is required not only to enter but also to sustain an involvement in e-business and online learning. For instance, the level of competition between educational organisations providing online services is increasing, requiring organisations to continually refine and improve their offerings.

Final comment

The above discussion demonstrates that applying e-business principles to online learning systems brings with it a mixture of benefits, barriers and risks. Applying e-business principles to online learning systems also means eventually taking online learning systems out of the industrial age and into the information age. Cortada (2001) suggests that managing the transition from the industrial age to the information age is not easy:

> The bad news is that transitions always create complexity, risk, and yet opportunity. The good news is that there are things to be done that facilitate the transition. They range from applying the basics (e.g. making a profit), to welcoming and implementing innovative approaches to work (e.g. new supply chains). (Cortada 2001, p.2)

In the industrial age model, the teacher dominated and the student was given access to learning materials at the discretion of the teacher. In the information age, some adventurous educational organisations are sometimes giving away their online content, symbolising the fact that the value-added services attached to the raw digital content, such as assessment and contact with the teacher and access to the organisation's brand name, are differentiators that students may prize most.

It is not simply a matter of moving from the industrial age to the information age and offering online services using e-business principles. Cortada (2001) argues that, in the early twenty-first century, we are caught in a transition period when we have no choice but to offer services in both the old and new modes. This is costly and difficult to manage, but unavoidable if organisations are to position themselves for a competitive future in the information age.

Factors influencing the future convergence of e-business and online learning

The research for this report suggests that, ideally, online learning systems will be progressively embedded within a thorough e-business approach to developing business systems and performing business processes. This chapter addresses educational, organisational, cultural and technological factors that could influence this embedding process.

Key points

The key points in this chapter include:

- It is no simple matter to merge online learning and e-business, as online learning on its own is a complex field. Educational issues regarding online learning are often interconnected with business, technological and marketing issues. For instance, there are ongoing debates in contemporary VET about business issues such as whether online content should be built in-house or the production outsourced or the content bought off the shelf. There are also passionate debates about the benefits of rival off-the-shelf learning management systems.
- Many organisational issues impact on the development of e-business models for online learning systems in VET, such as the range of new skills needed to develop, market and deliver online learning. Managers will be challenged by the progressive rise of e-business, for instance by customers finding it easy to access online the new suppliers of electronic learning products.
- Recent research has identified the cultural characteristics of customers and providers that could constrain the development of online learning and e-business in VET.
- Technology creates the opportunity for the use of e-business practices with online learning, but the technology is not always available for all users and it keeps changing as new functionalities become available.

Educational factors

Educational issues surrounding online learning such as quality, instructional design and teacher support systems are well summarised by researchers such as Harper et al. (2000), Cashion and Palmieri (2002) and Brennan (2001). This study shows that some educational issues raised by online learning are entwined with business, technological and marketing issues. For instance, Mitchell (2001c) found that there is considerable debate and disagreement within the Australian vocational education and training community about the future of online learning. The following issues, in particular, were found to be contentious:

- the value of customisable generic content versus truly customised material
- developing fully-rounded customised content versus developing learning objects (briefly defined as small chunks of e-learning content, normally based around a learning objective, accompanied by learning activities and resources)
- for and against the 'Toolboxes' (a FLAG project that promote the development of high quality online courseware and other online products to support VET programs and services)

- ✧ online content versus learning management systems
- ✧ education (quality, support) versus product (accessible, affordable). (Mitchell 2001c)

The educational debate extends beyond VET providers to vendors. For instance, vendors of learning management systems actively promote the educational virtues of their technology, while vendors of packaged online learning content simultaneously claim that their content is the primary educational issue.

Government-funded programs such as the Toolbox program are an attempt to build the online learning tools and content needed for VET in Australia. The decision to build local online content needs to be continually justified in the face of a range of other optional business models, such as outsourcing content development, customising existing content or not doing anything until markets are defined. Public providers interviewed for the national marketing research study about VET online learning products and services (Mitchell 2001c) expressed some tension about these choices. For instance:

> Some see content as the most important issue, while others are now focusing on services, such as providing overall management of online learning. Some are focused on the mass market of individuals undertaking courses leading to certification, while others are more interested in targeting whatever online courses are desired in the local market. Active, public debate of these concerns may lead to a more productive future for VET online products and services.
>
> (Mitchell 2001c)

The research by Mitchell et al. (2001) on VET managers in Victoria shows that many VET providers are aware that they are involved in the business of offering services, catering for different markets and satisfying their stakeholders, so they do not have the luxury of viewing educational issues such as the pedagogy of online learning in isolation from a range of inter-related business issues.

Organisational and management factors

Many organisational factors that impinge on the application of e-business models to online learning systems were identified in earlier chapters of this report. These factors included: the reluctance of some educators in the front office to collaborate with the administrative personnel in the back office, in terms of sharing the same technological platforms; the inexperience or lack of knowledge of staff in educational organisations in working in a digital, online environment; and the lack of funding for educational organisations to implement comprehensive e-business systems that can wrap around an online learning system.

Harper et al. (2000) identify some of the systemic and organisational impediments, pitfalls and challenges to implementing online learning in VET:

- ✧ The sector is characterised by the development of in-house expertise as an initial response to the demand.
- ✧ Real costs of developing online programs are rarely fully examined before embarking on projects.
- ✧ Addressing the resource implications for infrastructure, personnel, professional development and administration tends to be *ad hoc* unless the systems are centralised.
- ✧ Many institutions have published policies on delivery of training, but few have taken the next step to formalise their approach to online delivery.
- ✧ Constant change in the capability of the technology and user access works against comprehensive policy development.

Harper et al. (2000) conclude that one key to the development of future online products and services in the VET sector is recognising the current impediments and pitfalls.

VET organisations wishing to use an e-business approach to online learning—which can mean using a range of business practices to develop, distribute, market and support the online learning—are entering an emerging and changing market in online learning. Mitchell (2000c) finds that the market for online learning products is in flux, due to:

- ✧ continual changes in the technology available to access the products and services and due to the emergence of new styles of business alliances
- ✧ the steady increase in the volume of products and services available in the market
- ✧ the variable quality in standards and prices of products and services
- ✧ the increase in corporate and consumer interest in online training.

Mitchell (2001c) notes that the marketspace for online learning is becoming more demanding, so that developers of VET online products and services need more than instructional design skills and student support services. New capabilities required of developers of VET online products and services include:

- ✧ advanced project management skills
- ✧ quality management systems
- ✧ the ability to be 'fast, flexible, fluid'
- ✧ a mix of technical, educational and organisational skills
- ✧ the ability to develop learning systems that can cope with increasing scales of production
- ✧ skills in outsourcing development.

Mitchell (2001c) also finds that deliverers of VET online products and services need skills in relationship marketing, customer relationship management, facilitation and teaching, partnership and alliance management, an understanding of enterprise's business goal, after-sales service and long-term maintenance of product.

One significant area where a range of skills is needed within the VET organisation is in marketing. Mitchell (2000c) identified some of the prerequisite expertise that any vocational education and training marketing consortium would need to have to succeed in exporting Australian VET online products and services. The expertise is in the following areas:

- ✧ content development and customisation for specific markets, including being sensitive to cultural matters
- ✧ technology provision and modification for specific markets
- ✧ marketing expertise and knowledge of markets, including risk assessments of each niche market and knowledge of each market segment
- ✧ legal knowledge of options such as franchising
- ✧ access to venture capital
- ✧ quality standards for online products and services
- ✧ building rapport and trust with markets
- ✧ logistics for delivering on time.

Mitchell (2000c) observes that much of this prerequisite expertise is also necessary for developing and marketing VET online products within Australia, particularly marketing expertise and knowledge of markets.

The management challenges of applying e-business models to online learning systems are significant when considering the overall challenges posed by e-business. Cortada (2001) argues that modern managers and their staff must be students of technology, but cautions that this is very hard to achieve, as 'technological progress is normally unpredictable':

> You should not assume that technological progress is inevitable or straight-lined … surprises come out of nowhere and with positive and negative consequences (e.g. the biology professor who invents grass that does not grow, thus putting lawnmower manufacturers out of business while creating windfall opportunity for garden supply shops.) (Cortada 2001, p.xxv)

Cortada (2001) identifies a range of new issues and implications for managers, due to the decline of physical commerce:

- Value chains for manufacturing, marketing and delivery of goods and services change
- Loss of the physical market. What are the new value propositions?
- Potential effects on brand loyalty and familiarity also change when goods and services are sold remotely. How do they change? Does that hurt or help the firm?
- Recourse for consumers wanting to replace a defective product
- Role of government safety and taxing authority changes
- Definition of a market, an industry or a set of customers changes
- Movement of value for a customer shifts
- Customers defining their own channels, or hybrids of channels, with implications for profitability from existing firms
- Potential for pervasive, ubiquitous distribution
- Co-existence of multiple supply chains. (Cortada 2001, pp.29–30)

The organisational and management challenges raised by the application of e-business approaches to online learning are both substantial and increasing.

Cultural factors

Cultural factors affecting the application of e-business models to online learning were featured in earlier chapters of this report, particularly in the discussion of barriers and risks in the previous chapter. Two main cultures are involved—that of customers and that of deliverers. Cultural factors include customers' resistance to change and customers' usual preference for the conventional face-to-face contact with the teacher and other students. VET deliverers are also challenged by the culture of the online medium which changes the way they can interact with their students and threatens them by asking them to learn about new business processes.

Marketers of online learning might use all the marketing techniques made possible by the availability of the internet, but unless the consumer market is ready for the online learning product the marketing effort is wasted. Research by Mitchell (2001c) provides the mainly cultural characteristics of the individual VET learner market for online products and services:

- working adult students, not apprentices, trainees, unemployed students or students who have just left school
- positive about the benefits of learning
- self-directed learners
- verbal learners
- who prefer to use online learning in conjunction with other delivery strategies
- who also like to learn through hands-on practice

- appreciate extra support in online courses such as face-to-face or telephone contact with a teacher
- believe that online learning saves them time and helps them do their job better
- use the internet at home for around two hours per day
- sometimes have employers who support online learning and provide access to online facilities at work
- will take advantage of online learning for both short courses and accredited courses
- often would use it to study IT courses but could use the medium to study a wide range of different VET courses
- and would study more online courses if they were made aware of them. (Mitchell 2001c)

VET marketers need to take into account the cultural aspects of the VET online learner outlined above, when marketing online learning.

Cultural aspects of VET providers also need to be accommodated if online learning is to be brought into the more demanding framework of e-business. The interviews for the Flexible Learning Advisory Group national marketing study (Mitchell 2001c) revealed a range of different mindsets among the providers of online products and services, summarised as follows:

- Product-centric mindset (e.g. 'We promote our platform for managing learning, which should precede online content.')
- Technology-centric (e.g. 'Everyone is so obsessed with their own learning management system. Blackboard is streeting WebCT at the moment.')
- Sales-centric (e.g. 'Lots of institutes thought "I am going to make a $1 m out of online learning". But it has to be approached slowly, methodically, with a long-term commitment. There is no way you can get a return on investment in the first few years.')
- Market-centric (e.g. 'There needs to be a change of attitude of online deliverers. Students' needs should be more important.')
- Student-centric (e.g. 'Students have to feel they are in control.')
- Instructional design (ID)-centric (e.g. 'We carefully design online content in conjunction with industry.')
- Accreditation-centric (e.g. 'Students want online learning for certification purposes.')
- Politically-centric (e.g. 'Most of the decision-makers at the top in my state understand that online learning is a vote winner.'). (Mitchell 2001c)

The mindsets of providers are key cultural factors impacting on the application of e-business to online learning systems. For instance, VET practitioners with an instructional design-centric mindset might convince themselves that the secret to success is to develop the ideal instructional design, when all the time there is no market for that particular online product. Effective instructional design is critical, but it is only one of a number of critical components needed to ensure that an online learning system is both popular and effective. An ideal e-business approach is to start with an understanding of market demand and to develop products and services to suit the identified market.

Technological factors

Technological factors affecting the application of e-business models to online learning also featured in earlier chapters of this report. In particular, there was strong emphasis on the point that front office services, such as online learning, can be strengthened and improved by the online learning

system being linked to the back office and supply chain, both electronically and in terms of the business processes performed.

Mitchell (2001c) found that students' access to technology is considered a barrier for half of the VET providers surveyed: 50% of providers consider that their organisation's access to the online learning market is restricted by the students' lack of necessary technology. However, Mitchell (2001c) also found that 37% of the students surveyed in the study use the internet at work, which is a surprisingly high level; 71% use the internet at home, which provides VET providers with incentives to provide online learning; and, on average, the respondents use the internet for two hours per day, which also is a surprisingly high level.

Technology creates the opportunity for the use of e-business practices with online learning, but the desired technology is not always available, or it keeps changing and offering more functionalities. Learning management systems are one such technology. Learning management systems were originally designed to store and make available online learning content, while also recording usage, but their functionality is now being expanded in some cases to include other human resource management functions such as induction, leave and pay records and career planning. In a few instances, manufacturers of learning management systems have sought to emulate the providers of integrated e-business systems, by offering applications that allow for enrolment, financial record-keeping and inventory management. This is a brave commercial decision by the manufacturers of learning management systems, as they are competing with very substantial companies who provide integrated e-business systems, such as Oracle, PeopleSoft and SAP.

Learning management systems have been progressively improved over the last five years and will probably undergo constant improvements to their functionality and performance, with impacts on their price. This constant change in technology needs active analysis and management. Turban et al. (2000) suggest that contemporary organisations require an ongoing, continuously updated understanding of the new information and communications technologies available, and the products, services and processes made possible by the technology.

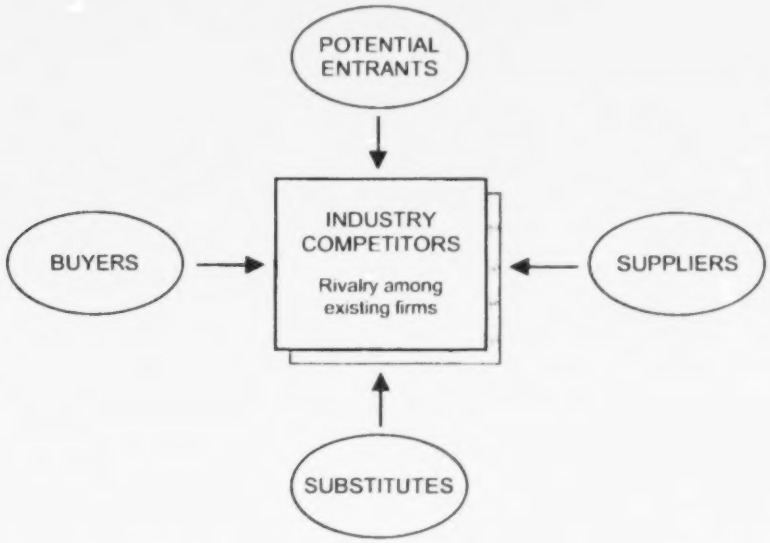
Industry factors

The previous comments relating to companies providing learning management systems competing with companies providing integrated suites of e-business applications is a reminder that industries such as the online learning industry or the e-business industry, are affected by different forces. An industry is defined loosely as comprising markets, stakeholders (for example, customers, vendors, suppliers and users) and technologies. Porter (1980) provides a useful guide to studying any industry, and his model could be applied to both the e-learning and the e-business industry in Australia. In Porter's economic model, four sets of stakeholders compete and interact in an industry:

- buyers
- suppliers
- potential entrants to the industry
- substitutes.

In a vibrant industry, the four stakeholder groups are all affected by industry competition and subsequently benefits flow to all the successful firms' stakeholders—their investors and staff, the customers and the general community.

Figure 10: Porter's (1980) stakeholder model of an industry



Source: Porter (1980)

As discussed earlier, the analysis of online learning in the Australian vocational education and training sector (Mitchell 2001c) noted significant changes occurring in the market for online products and services. The market is changing from one dominated by government-funded initiatives to one influenced by normal market forces, such as competition between vendors. The Mitchell (2001c) study also noted a range of new capabilities needed by both developers and providers if they are to satisfy the identified markets for VET online products and services.

The analysis of e-business in VET in Australia (Mitchell 2002) found that the e-business industry, like online learning, was in an early stage of development, but changes are obvious.

> The sector has been active in developing online learning and is now turning more to e-business applications to improve administrative efficiencies, for example in procurement, HR and payroll. Online information systems are being enhanced to provide online transactions. There is a need for adequate numbers of people with combinations of skills in business, educational administration and IT. Other constraints relate to the resource limits of the many very small businesses in the sector, the legacy technologies and the need to move forward on a state-wide basis. (Mitchell 2002, p.52)

One of the major themes to emerge from the study of e-business in education is the necessity for developing good working relationships between educational institutions on the one hand, and suppliers and vendors on the other (Mitchell 2002, p.86).

The two reports cited above (Mitchell 2001c, 2002) demonstrate that both e-business and online learning in VET will benefit from the development of new capabilities in VET organisations, including a hybrid mix of business, educational and information technology skills. Both industries will also benefit from users and customers developing a more extensive dialogue with vendors and manufacturers. Both industries will also benefit from continued exploration of the possible convergence between the two of them.

The following case study of the ANZ bank is an example of a commercial supplier of online learning services providing new competition to the conventional suppliers in Australia. Interestingly, a key proponent of online learning within the bank views online learning as benefiting from e-business technologies and processes.

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ANZ Bank's Online Learning Services

Peter Tilton, Head of ANZ's Online Learning Services, believes that the VET sector has struggled to gain success from online learning, leaving a gap in the market for commercial providers such as ANZ, which is now targeting a range of industries, including the financial services sector. He believes that the VET sector is not meeting industry demands by focussing funding and attention on the curriculum interests of the institutions and the quality of courseware has been variable to date.

ANZ has built the online learning offering upon the e-business infrastructure of the bank, so that the organisation can offer more than just a learning management system. For example, ANZ's online learning systems support integration of the bank's secure online payment facility to enable clients the facility to pay for courses online. In addition, customers can take advantage of the significant suite of compliance, risk, information technology and professional development courseware titles available. The learning management system used by ANZ is the Oracle iLearning application. By providing this system to customers on a fully hosted and supported ASP (application service provider) basis, it enables relatively simple integration with other e-business functions such as a company's payroll or human resources system.

The ANZ bank understands the value of online learning internally, for human resource development, and externally, as a new service the bank can offer. Peter Tilton is very confident Online Learning Services will be a successful venture for the bank, providing online learning both within the financial services sector and to other industries:

> We can leverage off the significant experience and IP [intellectual property] developed from our internal success. We have moved from solving a traditional HR [human resources] problem within the bank to providing supply-chain learning to our providers and customers through to developing a new business model: a one-stop-shop online learning solution. The VET sector is struggling with how to commercialise its efforts in online learning. If the education system won't solve a problem in the market, commerce will.

As well as aiming to be a profitable stand-alone business Online Learning Services helps to differentiate ANZ's corporate banking solutions, build even stronger relationships with corporate customers and provide training support for the tens of thousands of staff in organisations that use ANZ's corporate banking systems. ANZ Online Learning Services has already developed a strong presence in providing training and compliance accreditation support within the Custody, Trade, Asset Finance and Mortgage Origination sectors. It is this multi-faceted business model that ensures the longevity and success of the initiative.

Peter Tilton is conscious that online learning is suffering from the similar problems experienced by the dotcom companies: the technology is often 'vapour ware' in the sense that manufacturers have not yet field-tested and debugged new online learning technologies and very few providers have ever been profitable. On the other hand, Peter Tilton is aware that e-business vendors are also prone to sell the benefits of new technologies before the technologies are proven in the field. ANZ diminishes these concerns by working closely with customers to ensure a well-planned approach to strategy and implementation. In addition, ANZ has partnered with large profitable organisations such as Oracle and Thomson-NETg who provide mature solutions and will provide support over the long term.

Final comment

Earlier chapters of this report identified the many positive opportunities provided by using e-business approaches with online learning systems, such as using digital data about the student to provide not only online learning but other services as well. This chapter balanced that earlier focus on opportunities by focussing on a range of factors that might impact on or hinder or complicate future uses of e-business approaches to online learning systems. The discussion stressed the complexities of the tasks involved, the need for more skills, the challenge of a constantly changing market and technologies and the attitudes of students and staff. Harper et al. (2000) maintain that 'the maturation of online delivery will be realised once innovators begin to develop realistic strategic, pedagogical and commercial models' (Harper et al. 2000, p.1). This report argues that the strategic, commercial models for online learning could include principles and processes advocated by e-business.

Planning strategies

This chapter discusses the planning strategies that will enable a vocational education and training organisation to apply an e-business solution to the online learning environment, based on the research for this study and the experiences of a range of organisations. The discussion focusses primarily on the planning strategies needed to implement e-business, as planning for the implementation of online learning is covered thoroughly in other VET reports (for example, FLAG 2001a).

Key points

Key points in this chapter include:

- Australian VET educators often have considerable experience in planning and implementing online learning systems but not in planning and implementing e-business.
- A range of strategic business issues are currently impacting on the development of e-business in the education sector in Australia which need to be addressed before e-business can flourish, including identifying the customer service imperative for e-business for each organisation considering an e-business initiative.
- Despite the complexity of e-business, it is possible to identify practical steps that educational administrators need to take in adopting e-business, using two categories—business principles and processes and technology design and approaches.
- E-business and its linkages with online learning will vary from one organisation to the next. Instead of seeking a planning template therefore, managers are advised to examine their own organisation, their markets and their partnerships, and let this strategic analysis influence the identification of alternative directions.

Planning principles

Planning for the implementation of online learning within VET organisations is the subject of many research reports (for example, FLAG 2001a) and there are extensive professional development activities within the sector (for example, LearnScope program; Flexible Learning Leaders program), but planning for the introduction of e-business is less prominent. As VET educators also need to develop an understanding of planning for e-business, the following discussion focusses mostly on e-business.

Mitchell (2002) provides a range of planning principles for integrating e-business into educational organisations, while pointing out that e-business is 'complex, requires considerable work to implement thoroughly and the risk of mistakes is high unless adequate planning is undertaken' (p.75). He notes the following:

- Most educational organisations that adopt e-business practices take a number of years, not months, to trial and implement new processes and technologies', so some years are required to make significant change.

- The first requirement for the successful implementation of e-business in the education sector in Australia is for educational administrators to be clear about the nature of e-business as a set of business principles, not as simply an implementation of technology.
- If e-business is to form deep roots in education, the availability of technology for e-business is the least of concerns, while attention is needed to address the conservative culture of their organisations, funding limitations or the perceived lack of business imperatives.
- Attention is also needed to address end-user (student, community) demand and access to technology.
- Generally there is a lack of knowledge among many generalist educational administrators in Australia about the back office and supply chain management issues related to e-business, which some introductory training would overcome.
- Educational managers need additional knowledge and skills to make optimal decisions about e-business. The skills required are a hybrid mix of strategic and business planning, information technology and change management and the decisions may be best made by a team of staff who collectively contribute to the range of knowledge and skills required.

(Mitchell 2002, pp.75–76)

Addressing strategic business issues first

Mitchell (2002) also points out that the growth of e-business in the Australian education sector needs to be driven by business goals, such as increasing organisational efficiency and effectiveness, and inventing or enhancing service delivery. However, a range of strategic business issues are currently impacting on the development of e-business in the education sector in Australia, stalling the achievement of such business goals and the widespread development of e-business in the sector. Mitchell (2002) notes that these strategic business issues include:

- identifying the customer service imperative for e-business for each organisation involved in an e-business initiative
- appreciating the advantages and disadvantages of incremental implementation of e-business versus a wholesale implementation
- examining other organisations' cost benefit analyses for their e-business initiatives and developing a cost benefit analysis for one's own organisation
- understanding the value of national, integrated approaches to e-business in education versus local initiatives in e-business
- understanding the need to develop user support systems, to underpin e-business developments
- identifying equity concerns and the emergence of the digital divide
- working within infrastructure limitations, such as low bandwidths in remote areas.

(Mitchell 2002, p.76)

The above strategic issues need addressing if e-business is to flourish in Australian education.

Practical steps in e-business planning and implementation

Despite the complexity of e-business, it is possible, using two categories to identify practical steps that educational administrators need to take in adopting e-business. The categories are business

principles and processes and technology design and approaches. A case study of the UCLA (Mitchell 2002) identifies the following good practice steps in planning and implementing e-business:

- clarity of business drivers and goals
- clarity about users' needs
- focus on return on investment
- high-level executive support
- commitment of adequate levels of funding
- ability to integrate earlier initiatives with new plans
- thorough planning at all levels
- appropriate technology architecture
- development of an effective web interface to legacy systems
- use of effective change management strategies
- provision of staff development
- use of extensive alliances with software developers and hardware providers
- development of enabling policies
- use of trials
- evaluation of trials. (Mitchell 2002, pp.77–78)

Two other planning principles identified by Mitchell (2002) include:

- the importance of each educational organisation understanding the costs and benefits of e-business, whether embracing a comprehensive approach to e-business, or just one component, such as customer relationship management or e-procurement
- the necessity of developing good working relationships between educational institutions on the one hand, and suppliers and vendors on the other.

Different e-business planning for different contexts

Different business cases are needed for different e-business initiatives. For instance:

> A business case to implement e-business within a stand-alone, single campus university will be different to a business case to implement e-business within all TAFE institutes in one state. Additionally, a business case to implement a range of e-business components within all TAFE institutes in one system will be different to the case to implement just one aspect of e-business, such as e-procurement. (Mitchell 2002)

The business case for a systemic development of e-business, as demonstrated by the Victorian TAFE case study in Mitchell (2002), is driven by the advantages of collaboration and strategic partnerships, but is not without risk. Risks in systemic projects like the Victorian TAFE e-business development include:

- the potential withdrawal of Government support
- ineffective management structures
- loss of key staff
- attempts to implement the technology without undertaking thorough project scoping
- inadequate training of users and inadequate attention to business process re-design
- poorly planned testing

- ✧ continual upgrades to the product
- ✧ loss of senior management support at Institute level. (Mitchell 2002, p.79)

Risks in systemic projects can be minimised through:

- ✧ the use of a thorough and consultative planning process
- ✧ an incremental introduction of new technologies
- ✧ the simultaneous attention to business re-design and change management.

(Mitchell 2002, p.79)

A key to the success of the Victorian TAFE e-business project is collaborative decision-making. A long-term business plan, reviewed annually, guides the e-business project through the development and implementation phases. In this way, the stakeholders are motivated and drive the initiative (Mitchell 2002).

Planning for online learning

Many of the planning principles for e-business are relevant to planning for the introduction of online learning, such as attending to both the business and technological issues. Business issues include clarifying the organisation's goals, understanding users' needs and gaining commitment within the organisation. The Flexible Learning Advisory Group (FLAG 2001a) provides a detailed business planning framework for flexible learning, incorporating online learning.

Mitchell et al. (2001), in their analysis of the critical business decisions required of VET managers in implementing flexible learning, argue that online learning is best cultivated by seeing it as one aspect of flexible learning. Their ten issues papers on flexible learning, which are entirely relevant to planning for online learning, cover the following areas: define the scope; develop a rationale; identify new business models; analyse cost benefits/effectiveness; provide leadership; stimulate innovation; build customer knowledge; develop organisational capability; manage the teaching and learning; encourage self-directed learning. Planning for online learning requires planning for the broader field of flexible learning and this planning is extensive.

Planning for the convergence of e-business with online learning

This study shows that some VET organisations, such as the Open Learning Institute in Queensland, Swinburne University of Technology in Victoria, WestOne in Western Australia and Central West Community College in New South Wales, are already some way towards effecting a convergence between e-business and online learning. The study provides examples of VET organisarions developing customer relationship management systems and online enrolment systems which link to their online learning systems. The study also provides examples of VET organisations using e-marketing strategies to connect with their online learning students. Examples of VET organisations using e-business to deliver a wide range of electronic services to their students are provided. One of the services bundled for the student is online learning.

The study highlights the development of a new business philosophy among many VET managers (Mitchell et al. 2001; Henry 2001a, 2001b) where flexible learning and its sub-set online learning, are seen as components of the essential way of being in business; that is, to be demand-driven and market-driven not supply-driven and technology-driven. E-business is an aid in achieving these business goals.

Before embarking on any technology installation or new business practices, VET organisations considering the implementation of e-business and online learning are encouraged to examine the contents of this study carefully. But there is no pressure to do things impulsively. The study shows that e-business, defined as conducting business electronically, is here for the long term, just as online banking is here for the foreseeable future. The study also shows that e-business drivers like improved internal efficiencies, improved customer service and improved supplier relationships will be part of the future of business, including educational business. E-business and online learning are being influenced by similar drivers.

The study also highlights that e-business and its linkages with online learning will vary from one organisation to the next. Instead of seeking a planning template therefore, managers are advised to examine their own organisation, their markets and their partnerships, and let this strategic analysis influence the identification of alternative directions.

Common themes to emerge from the Australian VET case studies and exemplars in this study relating to managing the convergence of e-business and online learning are identified below. These themes also provide recommended actions for VET managers:

- ✧ Identify business drivers, including strategic objectives and internal efficiency gains.
- ✧ Identify student needs and skills.
- ✧ Gain management commitment.
- ✧ Resource adequately.
- ✧ Develop online products and services that are in demand.
- ✧ Develop innovative business models to suit the market.
- ✧ Market the benefits of the new services to students.
- ✧ Combine internal information technology strengths with educational management.
- ✧ Develop a robust technological infrastructure.
- ✧ Partner external providers where possible.
- ✧ Develop staff skills.
- ✧ Provide adequate student support systems.
- ✧ For the near future, provide dual systems—traditional face-to-face services and online services.
- ✧ Implement in stages and improve continuously.
- ✧ Implement a risk management strategy.

Final comment

Planning strategies that will enable a VET organisation to apply an e-business solution to the online learning environment need to start with an analysis of the strategic challenges facing the organisation. Planning then needs to take into account the value of proceeding incrementally or in undertaking a comprehensive project, and the risks and opportunities associated with each strategic choice.

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Appendix 1 Research questions and methodology

Research questions

The major research questions of this study are:

- What are the new and emerging e-business models and solutions that could enhance the delivery of, enrolment in and the management of online learning systems in VET in Australia?
- What educational, organisational, cultural and technological factors could influence the development of e-business models for online learning systems in VET?
- What planning strategies will enable a VET organisation to apply an e-business solution to the online learning environment, based on the experiences of other organisations?

Methods

The research methods for this study included:

- a literature review of recent journals, books and other publications, covering topics such as e-business models for the online learning environment and e-business models for service organisations in the online environment, involving overseas as well as Australian examples
- a search of the internet for new and emerging business models for online learning
- the generation of theories based on the literature review and internet search
- the development of the case study interview/investigation instrument, based on the above research
- interviews with representatives from Australian educational organisations which have a full or partial e-business model for online learning systems. The organisations are from both the VET sector and other educational sectors
- an analysis of the e-business models used by at least five overseas educational organisations that have a clearly articulated e-business model and also provide online learning.
- an analysis of the e-business models and solutions implemented in at least five non-educational organisations that could be transferred to the VET environment.

Role of VET partner

It was a requirement of the project that a VET organisation be involved in the project. Judy Bissland, formerly the Director of Swinburne University's School of Business and eCommerce—TAFE Division and now Acting Executive Director, Educational Development, and key staff from the corporate services division of Swinburne provided input and advice on the literature review, the data gathering and analysis and the draft report and final report. Judy Bissland and a number of staff also acted as critical friends, commenting on the research process and findings. Key draft documents were circulated for comment and meetings convened at a number of important points during the project, between August 2001 and July 2002.

Discussion

Some aspects of the originally proposed research methods proved to be straightforward, but other aspects were not.

The straightforward aspects included a search of the internet for new and emerging business models for online learning; the generation of theories based on the literature review and internet search; and the development of the case study interview/investigation instrument, based on the above research. The relationship with Swinburne University was not only straightforward, but added value to the final document.

The aspects of the research that were not straightforward were as follows:

- Regarding the literature review, there is very little explicit literature on e-business models for the online learning environment. The author is one of the few to have written on this topic, so there necessarily are frequent references to the author's other reports.
- Regarding the interviews, the interview case study instrument set out in appendix 2, which was tightly linked to the research questions for this study, proved too obscure for many interviewees, who were not used to jargon such as e-business and online learning. The interviewer needed to modify the questions for most of the interviews.

Selection of case studies and exemplars

The selection of Australian interviewees was guided by the need to interview representatives from Australian educational organisations that have a full or partial e-business model for online learning systems. The organisations needed to be from both the VET sector and other educational sectors. The interviewees were drawn from the following organisations and met the above needs. The educational organisations were:

- TAFE institutes: the Open Learning Institute of TAFE, QLD; Douglas Mawson Institute of Technology, SA; Challenger TAFE, WA
- TAFE division of a university: Swinburne University's School of Business and eCommerce
- Non-TAFE VET providers: Manly Warringah Community College, NSW, Sydney Community College and Central West Community College, NSW; and the Securities Institute of Australia, NSW
- VET provider of e-business services but not a registered training organisation: WestOne, WA.

The non-educational organisations were the Australian Taxation Office and the ANZ bank. In addition, analysis was undertaken of an e-learning company, SelfCert, and discussions held with representatives of e-learning companies, NETg and SmartForce.

The selection of overseas exemplars of companies using e-business and online learning was guided by the need to describe the business models of at least five non-educational organisations that could be transferred to the VET environment. Besides the ANZ bank and the Australian Taxation Office, the following organisations were analysed to provide the report with examples from different industries: Barnes and Noble, bookseller; Metrowerks, microprocessor manufacturer; Consignia, UK post office; and Deustche Bank.

Using an internet search, the selection of overseas exemplars of educational organisations using e-business and online learning was guided by the need to describe the business models of a range of educational organisations. The exemplars included the Canadian Virtual University; McGraw Hill Education; Stanford University; the Global Film School; Cardean University; and UCLA.

Appendix 2
Interview/case study instrument

Introduction

Thank you for agreeing to be interviewed for the research into 'connections between e-business and online learning' being conducted for the National Centre for Vocational Education Research by John Mitchell and Associates. Please note that we would like to be able to quote your answers directly in the final report.

Definitions

Set out below are our definitions of key terms. Your definitions may be different, which we respect.

We understand *e-business* as:

- conducting business electronically, both within an organisation and externally, with clients, communities and partners
- through re-designing business processes and the use of information and networking technologies
- in order to achieve business goals such as improving efficiencies, reducing costs, increasing speed of transactions, expanding markets, enhancing business partnerships and, most importantly, providing additional value for clients.

Online learning is one of a range of front office, electronic services offered by educational organisations. Online learning systems are educational business structures that often include a web-based technological infrastructure, online course material and online enrolment, tutoring, communication, assessment and administration procedures.

Introductory questions

1 Name?

2 Title?

3 Organisation?

Topics and questions

1 Please describe in some detail your understanding of e-business and online learning.

2 Please describe your organisation's current activities in e-business and online learning.

3 What connections do you see between e-business and online learning?

4 What technologies do you use for development, delivery and management of online learning?

5 What business processes within your organisation are influenced by e-business?

6 What business processes for online learning within your organisation are influenced by e-business?

7 Please comment on how each of the following factors influence the development of e-business models for online learning in your organisation:
   - educational
   - organisational
   - cultural
   - technological

8 What benefits, barriers, risks and other factors impacted on the application of e-business principles and processes to online learning in your organisation?

9 What planning strategies did you use in applying e-business solutions to online learning, in your organisation?

Appendix 3
List of personnel consulted

Angus Bissland, Supply Chain Analyst, Customer Supply Chain, Toyota

Ben Bardon, Executive Director, Central West Community College Ltd, NSW

Bernie Howe, Information Technology Trainer, IT Training, Australian Taxation Office, ACT

Dennis Macnamara, General Manager, Business Development & Service, Securities Institute, NSW

Garry Traynork, Principal, Sydney Community College, NSW

Gavin Slattery, Manager, Department of Management, Swinburne University of Technology—TAFE Division, VIC

Gerard Newcombe, Executive Director, Manly Warringah Community College Inc, NSW

Gess Carbone, Manager Corporate Services, Douglas Mawson Institute of Technology, SA

Greg Cameron, Teacher, School of Business & eCommerce, Swinburne University of Technology—TAFE Division, VIC

Heather Uffindell, Associate Director, Client Services, Swinburne University of Technology, VIC

Johanna Ryan, Teacher, School of Business & eCommerce, Swinburne University of Technology—TAFE Division, VIC

John Blakely, Director, Educational Services, Open Learning Institute, QLD

Judith Bissland, Acting Executive Director, Educational Development, Swinburne University of Technology—TAFE Division, VIC

Julie Eldridge, Channel Manager Asia Pacific, NETg, NSW

Keith Dow, Managing Director, Thomson NETg, London UK

Laurel O'Hara, National Education Adviser, SmartForce, NSW

Liz Harris, A/General Manager Training Research and Development, Challenger TAFE, WA

Lloyd McDonald, Learning Consultant, formerly SmartForce, NSW

Malcolm Goff, Managing Director, Challenger TAFE, WA

Mark Samuels, Business Solutions, The Learning Group, NSW

Peter Tilton, Head of Online Learning Services, ANZ, VIC

Rod Arthur, Director, Open Learning Institute, QLD

Rosalind Gilroy, Director of Marketing and Customer Relations, Open Learning Institute of TAFE, QLD

Sandra Lydon, Principal Teacher, Open Learning Institute of TAFE, QLD

Sarah Davies, Vice President, Student Services, Swinburne University of Technology, VIC

Stuart Young, Director Product & Technology, WestOne, WA

Sue Lapham, Director Corporate Development, WestOne, WA

Sue Tomkinson, Program Coordinator—eCommerce/Project Officer—eBusiness, School of Business & eCommerce, Swinburne University of Technology—TAFE Division, VIC

Susan Young, National Project Director, Reframing the Future, SA

The National Centre for Vocational Education Research is Australia's primary research and development organisation in the field of vocational education and training.

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